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SPORADIC CRETINISM IN AMERICA.[1]

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I. Incidence of the Disease in America. In 1893 I made a collective investigation on the subject of sporadic cretinism in this country, and was able to find only eleven cases. Since that time the profession has learned to recognize the condition, and I am able to-day to report upon sixty cases, including those already referred to. Of these twenty-seven have been recorded; for the others I am indebted to various physicians throughout the country who have kindly responded to my inquiries, and in many cases sent photographs.

(*a*) *Condition of the cases previously described.* It will be interesting to report on the progress of the patients who formed the basis of the first paper, in 1893.[2]

Case I.—M. has been under my observation from January 10, 1892, at which time she was two years and three months old, and presented a typical picture of infantile myxœdema. I reported upon her case in the February number of the *Archives of Pediatrics* for 1895. The thyroid extract was started in March, 1893, and she grew four inches in the first fourteen months. She learned to walk and talk, ran about everywhere, and lost altogether the cretinoid appearance. I have seen this child at intervals of a few months ever since. She has continued to take the thyroid extract, and has grown and developed, and now nothing peculiar is to be noticed about her.

Case II.—A cretin, nineteen years old at the time of observation, March 3, 1893, without any special evidence of myxœdema. She had a goitre in which the left lobe was more enlarged than the right. This

[1] Abstract of paper read on behalf of the Pediatric Society at the Congress of Physicians and Surgeons, Washington, May, 1897.

[2] American Journal of the Medical Sciences, November, 1893.

patient took thyroid extract for a short time, without any special benefit. The treatment has never been sytematically carried out by her mother.

CASE III.—A child, aged three and one half years when she came to the Johns Hopkins Hospital Dispensary, November 25, 1892, was a typical instance of infantile myxœdema. She was, unfortunately, lost sight of.

CASE IV.—G. S., female, aged six years (Dr. Bullard's case). Dr. Bullard writes on April 14, 1897: "She has had no treatment, and is essentially in the same condition as when I wrote in 1893. She has grown little, if at all, and is a dwarf."

CASE V.—S. M., aged nineteen years (Dr. Brownell, New York Custodial Asylum, Newark, N. Y.). March 26, 1897, Dr. Brownell writes: "S. M. died about two years since in the Erie County Almshouse, Buffalo, to which she was removed shortly after the history sent you was taken. I regret to say that I have no subsequent notes of her case." Not treated.

CASE VI.—L. S., aged fourteen years (Dr. Van Sweringer, Indiana School for Feeble-minded Children). The patient died of acute tuberculosis in November, 1896. The case will be reported in full under the section on pathological anatomy.

CASE VII.—Martha L. Y., aged sixteen years (Dr. J. C. Carson, State Institution for Feeble-minded Children, Syracuse, N. Y.). The further history of this case is as follows: Treatment was begun September 4, 1895. At that time her height was forty and one-half inches and the weight fifty-seven pounds. After one month the change in her condition was striking. At the end of two months the entire skin was renewed, giving place to the velvety skin of an infant, and a new

FIG. 1a.

FIG. 1b.

growth of hair just appearing on the head. At the end of eight months she had grown three and one-eighth inches, and weighed sixty-two and one-half pounds. The teeth which have appeared since are eight incisors, one canine, and two second molars. The photographs (Figs. 1*a* and 1*b*) show the condition a year before and a year after treatment.

CASE VIII.—Willie V., and Case IX., Johnnie V. (Dr. Hoisholt, State Insane Asylum, Stockton, California). Dr. Clark writes under date of April 1, 1897, that the thyroid treatment was not tried, on account of the age. They present no changes.

CASE X.—Nellie R., aged fifteen years (Dr. Furness, Randall's Island Hospital, New York). Dr. Frederick Peterson reports this case in *Pediatrics* for May 1, 1896. He says: "Treatment was begun with five grains of the dried gland, which proved too much, and it was reduced to one grain daily. Improvement was noticeable in a few days. In the course of three months she grew thinner, gained two inches in height, cut several new teeth, her hair became more abundant, she assumed an intelligent expression, noticed everything about her, played with a doll, and had increased her vocabulary to twenty-seven words. At this time treatment ceased because of changes among internes and attending physicians."

CASE XI.—I. N., female, aged probably thirty-five years (Dr. A. E. Osborne, of the California Home for Feeble-minded Children). In a note from Dr. Osborne on April 1, 1897, he says: "I regret to have to say that our cretin died shortly after I forwarded you the notes relating to her. I really have nothing further of material interest regarding her."

It will be noted that of these cases eight were either not treated at all or the treatment was not thoroughly carried out; three cases have been treated with great improvement, and three have died.

(*b*) *Clinical summary of the collected cases.* We have had three additional examples of sporadic cretinism at the Johns Hopkins Hospital, the brief notes of which are as follows:

CASE XII.—J. L., aged about forty-four years, admitted to the Johns Hopkins Hospital, Surgical Department, for cystitis. He presented a very characteristic appearance of a cretinoid dwarf. He had a muddy complexion, dry skin, harsh, rasping voice. There was no goitre. He had a fair amount of intelligence, but he was in many ways infantile and childish. He received no special treatment.

CASE XIII.—Theophilia P., aged two years, was admitted to the Johns Hopkins Hospital December 18, 1895. It was very difficult to get a history, as the mother was a Pole, and did not speak English. This is the second child; natural at birth. There is no goitre in the family. The thyroid gland can be felt; seems a little large. She presents the typical aspect of infantile myxœdema. Though of fair size for her age, she can neither sit nor stand. The child looks pale; the skin of the face has a sallow, waxy appearance. The tongue is large, held out all the time. The expression of the face is dull and idiotic. The lower jaw drops, and she drools constantly. There are eight incisor teeth, and she is cutting a lower molar and the molars of the upper jaw. The eyelids are puffy, and the palpebral orifices look narrow. The skin of the face is rough, and there is a puffiness and myxœdematous character of the skin of both hands and face. The head measures 45 cm. in circumference, 25½ cm. in the transverse, and 35 cm. in the antero-posterior. The anterior fontanelle is large, almost as much so as at birth. The posterior fontanelle is completely closed.

The abdomen is large and pendulous. The skin of the thighs, as shown in the photograph (Fig. 2*b*), hangs in folds. The child's length on admission was 65 cm. The blood-count gave 4,648,000 red corpuscles, 80 per cent. of hæmoglobin, and about 11,000 leucocytes.

FIG. 2a.

FIG. 2b.

On December 20th she was placed on the thyroid extract prepared by Dr. Abel. On beginning the treatment she weighed twenty pounds. Within two months, as illustrated in Fig. 2*b*, the condition improved remarkably. She took an interest in surrounding objects. The eyes had become bright and intelligent; the puffiness of the face and hands had almost wholly gone. As shown in the photograph, the palpebral orifices had become much larger. The tongue was not held out so far from the mouth, and the drooling had almost ceased. She remained in the hospital until September 1, 1896. The myxœdematous condition disappeared entirely, she gained eight pounds in weight, and had thriven in every way. It is interesting to note in this case that from March 20th to April 4th, the child received no thyroid extract. She had had a little fever and bronchitis, and it was stopped. On the latter date it was noticed that the skin had become harsh and dry, the eyelids more puffy, and the child did not seem nearly so well.

CASE XIV.—Teresa T., aged two years, brought to the Johns Hopkins Hospital Dispensary April 9, 1896. Parents are Poles. Child at birth was natural. She has never walked or talked; cannot stand alone. She is very apathetic, but seems to understand everything. The mouth is held wide open. The tongue does not protrude. The face is broad; the eyelids are puffy; the nose is broad, the orifice of the nostrils very plainly to be seen. The mouth is large, the lips are full, and the cheeks flabby and relaxed. There is a waxy, sallow tint to the skin. The head is broad, parietal eminence marked, forehead low. The tongue is large; upper and lower incisors are just appearing. The subcutaneous fat over the body is abundant. There are no pads above the clavicles.

The belly is very prominent and pendulous. The general cretinoid aspect is most marked. The thyroid gland cannot be felt. There is no dulness over the manubrium. She was given the thyroid extract, but the parents did not return with the child for nearly eight months. She then seemed a little better, though still myxœdematous. I saw her in May of this year, after she had been taking the extract for several weeks. She looked brighter, had grown, and had lost in part the idiotic expression.

Abstracts of the other forty-six cases will be given when the paper appears in the *Transactions* of the Congress.

The clinical summary of the cases is as follows:

Sex. Males 24; females 36.

Age. Under two years, 6; from two to five years, 12; five to ten years, 12; ten to fifteen years, 10; fifteen to twenty years, 7; twenty to thirty, 3; thirty to forty, 4; over forty years, 4.

Nationality. American, white, 12; colored, 1; Polish, 2; French, 1; German, 5; Swede, 1; Hebrew, 1; Norwegian, 1; Irish, 7; English, 1; Swiss, 2; Bohemian, 1; nationality not given, 23.

Locality. There is no region in the country in which the disease is endemic, nor does it appear to be more prevalent in those districts, as in Michigan and parts of Ontario, where goitre is common.

Condition of the thyroid gland. Goitre was present in 7; gland stated to be normal in 12; gland small in 2; gland not to be felt in 16; no note in 20.

II. The Results of Thyroid Treatment. No type of human transformation is more distressing to look at than an aggravated case of cretinism. It recalls Milton's description of the Shape at the Gates:

> "If shape it might be called, that shape had none
> Distinguishable in member, joint, or limb,"

or those hideous transformations of the fairy prince into some frightful monster. The stunted stature, the semi-bestial aspect, the blubber lips, *retroussé* nose, sunken at the root, the wide-open mouth, the lolling tongue, the small eyes, half closed with swollen lids, the stolid, expressionless face, the squat figure, the muddy, dry skin, combine to make the picture of what has been well termed the "pariah of nature."

Not the magic wand of Prospero, or the brave kiss of the daughter of Hippocrates ever effected such a change as that which we are now enabled to make in these unfortunate victims, doomed heretofore to live in hopeless imbecility, an unspeakable affliction to their parents and to their relatives. From a large number of photographs which I have received I have selected a set to illustrate the effect of treatment at different ages, from infancy to the thirtieth year, and illustrating also the influence at periods varying from two months to a year. The series has an educational value, as the pictures tell their own story, enabling the practioner not only to recognize the victims of this affection, but

they emphasize as words cannot the magical transformation which follows treatment.

Fig. 3 shows the patient of Dr. Elsner, of Syracuse, New York.

FIG. 3a.

FIG. 3b.

The child was eighteen months old at the beginning of treatment, and the photograph shows a very characteristic state of infantile myxœdema. Fig. 3*b* shows the state thirteen months after treatment.

FIG. 4a.

FIG. 4b.

Fig. 2 (given on another page) shows Case XIII. of the series. She was two years old at the beginning of treatment. Fig. 2*b* shows the condition after two months' treatment.

Fig. 4, the next case, is a child aged four years, a patient of Dr.

Jacobi and Dr. Fruitnight. The facies and general conformation are most typical. Fig. 4*b* shows the change a year and a half after treatment.

FIG. 5*a*.

FIG. 5*b*.

Fig. 5 illustrates the case of Dr. Vinke, of St. Charles, Mo., a boy, aged six years. Fig. 5*b* shows the condition five months after treatment. In a year and a half he grew nine inches.

FIG. 6*a*.

FIG. 6*b*.

Fig. 6 shows a patient of Dr. Dickson L. Moore, of Columbus, Ohio, a girl, aged nine years. The treatment was begun August 12, 1896.

Fig. 6*b* shows the condition seven months later, March 20, 1897. The child had gained four inches in height, and the entire appearance had changed remarkably.

FIG. 7*a*.

FIG. 7*b*.

Fig. 1 (shown on another page) presents a typical picture of a sporadic cretin, aged seventeen years, under the care of Dr. J. C. Carson, of

FIG. 8*a*.

FIG. 8*b*.

Syracuse, New York. Fig. 1*a* was taken a year before treatment, and Fig. 1*b* illustrates the condition a year after.

Fig. 7 shows a sporadic cretin at the age of thirty years, patient of

Dr. Sinkler. The height was 112¾ cm. Fig. 7*b* shows the condition a year after treatment. She had grown nearly 7 cm., and had lost much of the myxœdematous characters. This case is of special interest as showing the importance of the treatment even in adults.

I know of no single set of photographs which show in quite the same way the phenomenal change as in this series of pictures very kindly sent by Dr. Coyner, of Peoria, Ill.

Figs. 8*a* and 8*b* show the very characteristic appearance of a sporadic cretin, aged twenty-three months, length 28 inches, circumference of the abdomen 19 inches. Fig. 8*c* shows the change after three months' treatment; the abdomen measured 16 inches. Fig. 8*d* illustrates the

FIG. 8*c*.

FIG. 8*d*.

condition after five and a half months' treatment; height 30 inches; abdomen measured 15 inches. Fig. 8*e* shows the change after seven and a half months' treatment; while the last picture, Fig. 8*f*, shows eleven months after beginning the use of the thyroid a perfectly natural-looking child.

1. *The character of the changes.*

(*a*) Bodily. Loss in weight, due to disappearance of the myxœdematous condition and of the fat, is noticed within a month or six weeks after the commencement of the treatment. The face becomes thinner, the palpebral orifices wider, the puffiness disappears from about the eyes,

the flabby supraclavicular folds melt away, the projecting abdomen diminishes in girth, and the child's figure becomes more shapely. Several of the photographs illustrate this in an interesting manner. This change is much more striking in young children of from three to six or eight years, but it is also well seen in the older patients. Nothing could be more remarkable than the change in the features in Dr. Carson's case, and even in Dr. Sinkler's case, aged thirty years, the change, as shown in the photograph, is most evident. The expression of the face is altered by the recession of the tongue, and in many instances the drooling ceases as the mouth is kept closed; this relieves in great part the idiotic expression.

FIG. 8f.

FIG. 8e.

Among the constructive and progressive alterations may be mentioned the loss of the waxy pallor of the skin, which becomes softer and much more natural looking.

The hair, too, changes, and becomes more abundant and finer. Several writers have referred very particularly to this remarkable change in the skin and hair, as though there had been a complete substitution

of the old by new skin and hair. In very young children teething proceeds rapidly; in older subjects, if the second dentition has not begun, the milk-teeth are shed and the permanent ones develop rapidly. No change is so remarkable as the increase in stature. As Dr. John Thomson remarks, "the natural impulses of growth, which were in abeyance in the thyroidless condition, are let loose." In my first case the little girl grew four inches in a year. Among the most remarkable in the collected series are the following: Dr. Friend's case gained eleven and three-quarters inches in one year and ten months, Dr. Vincke's case gained nine inches in one year and seven months, Dr. Noyes' case gained eight inches in four and a half months, and Dr. Edwin F. Wilson's case gained seven inches in six months.

Fig. 5 illustrates what an extraordinary alteration takes place after seven months' treatment. The loss of the squattiness of figure, of the apparent disproportion between the head and the trunk, and of the characteristic attitude, and the disappearance of the lordosis are well illustrated. It is to be remembered that the rapidity in growth in some cases has led to increase of a lateral curvature and even to marked bowing of the legs.

(*b*) Mental change. Even within a couple of months the alteration in the mental condition is noticed. At any rate, the patients look much brighter and the face is not absolutely expressionless. This is very well seen in Fig. 2, illustrating the change after two months' treatment. As a rule, the younger the case the more marked is the mental change. Young cretins who have not learned to speak a word soon begin to talk in their play. In children between six and ten the effects are even more remarkable, and with the loss of the myxœdematous condition there is a corresponding awakening of the mental faculties. In older patients the treatment is not so efficacious. In Case II. of my series, the girl, aged nineteen years, did not seem to be very much benefited, although it is true the treatment was abandoned by the mother after a short time. In other instances, as in Dr. Sinkler's case, the mental condition improved very much, even though the patient was over thirty years old. I know of no instance in which the treatment has benefited the condition of deaf-mutism.

2. *The dosage.* I have usually begun with a grain of the desiccated gland three times a day in young cretins. Its effects should be carefully watched, and the amount reduced if the pulse becomes more rapid or if there is fever. Older patients may take as much as five grains in the day, and the amount may be increased or diminished as the symptoms indicate. Young patients bear the remedy very well, and in a few months, if no improvement is noted, larger doses must be tried. Unpleasant effects are less commonly seen than in the myxœdema of adults.

3. *The question of continuance of the treatment.* After the disappear-

ance of the myxœdema and the establishment of the processes of growth and development, a very moderate dose seems sufficient, one or two five-grain tablets a week. Intermission for a month or six weeks does not seem to be followed by any striking change, but an intermission for a longer time is followed by symptoms indicating a relapse. In my first case in the early part of this year the treatment was interrupted for two months, and the child became very languid and apathetic, and improved at once when the use of the extract was renewed.

And here the thought arises: Whom has suffering humanity to thank for this priceless boon? As with many great discoveries, no one man, indeed, no set of men. The points in the development of our knowledge of the function of the thyroid gland have been worked out in almost equal shares by physicians, surgeons, and physiologists. Gull and Ord, Kocher and the Reverdins did much; but to the experimental physiologists, in particular to Schiff, to Horsley, and to von Eiselsberg, we owe directly the experimental evidence which made possible the successful treatment of myxœdema and sporadic cretinism. That I am able to show you on these lantern-slides such marvellous transformations, such undreamt-of transfigurations, is a direct triumph of vivisection, and no friend of animals who looks at the "counterfeit presentments" I here demonstrate will consider the knowledge dearly bought, though at the sacrifice of hundreds of dogs and rabbits.

III. Diagnosis. The number of cases which I have been able to collect indicates that the profession has rapidly learned to recognize sporadic cretinism. It is also evident, from statements and from photographs which I have received, that there are a number of conditions which are apt to be mistaken, and that even men in institution life have not very clear ideas upon the subject. There are several points to which I may refer.

(*a*) *The recognition of early slight cases.* After the third year the condition is, as a rule, diagnosed at sight, and advanced types offer not the slightest difficulty. The earlier the recognition is made, the greater is the prospect of complete recovery. About the eighteenth month the subject may present the aspect of myxœdema rather than of cretinism, and the swollen, waxy skin even suggests Bright's disease. Case I. of the series was supposed to have chronic nephritis. The failure of development, the inability to talk or to walk, and the retarded dentition begin to attract attention as the child reaches this period. The absence of expression, the open mouth, the large tongue, and the drooling suggest that something is wrong. The development may be so slow that a child of three years looks not older than fifteen months. There are, possibly, cases of thyroid insufficiency in young infants which correspond to the *myxœdème fruste* of the French, which may be readily overlooked. To this several writers have recently called atten-

tion. Dr. Bury,[1] in the discussion last year before the British Medical Association, states that he saw a baby a year old which had ceased to "get on." He became flabby, fat, lost his vivacity, and began to show a protuberant abdomen, a lax skin, and other cretinoid appearances. Treatment with small doses of the thyroid, one-fourth tabloid daily, speedily picked him up; he grew, became lively, and at the end of six months treatment was discontinued without retrogression. Such cases are probably due to transient, perhaps functional, disturbance in the thyroid. Herrick[2] also, in his recent paper, refers to the ease with which these milder cases may at first be overlooked.

(*b*) *The diagnosis from other types of idiocy.* Naturally enough it has been suggested that diminished or perverted function of the thyroid gland might be responsible for the mental and bodily defects in ordinary idiocy, and more particularly in dwarfs. The question is one deserving of careful study, particularly by those who have opportunities for clinical and post-mortem observation in large institutions.

The Mongol type of idiot resembles the cretin more closely than any other. Telford Smith, in speaking of this form, says: "Idiots belonging to the so-called Mongol type are those who most nearly resemble the cretin, both in physical aspect and in mental character. In idiots of this type we get the stunted growth, the dull, heavy expression, with open mouth and thick lips; the slow, deliberate movement, and hoarse, guttural, and monosyllabic speech; the mental apathy, and lack of spontaneity; the sluggish circulation, and sensitiveness to cold. A thickened condition of subcutaneous tissue is often found, with dulled cutaneous sensibility. The skin is coarse and dry, the hair short and thin. First and second dentition are delayed. As far as palpation enables one to judge, the thyroid gland is subnormal in size. Pseudo-lipomata I have not found." He has tried the effect of thyroid extract with some benefit, but there is not the same remarkable change as in the cretins. I cannot altogether concur with Dr. Telford Smith's statement as to the slow, deliberate movements and mental apathy of Mongolian idiots. It was a form in which Dr. Kerlin, of Elwyn, was particularly interested, and with him I had many opportunities of seeing cases. They rather impressed me as vivacious, often very sprightly and mischievous. In no instance was there any condition of the subcutaneous tissues suggestive of myxœdema.

Deaf-mutism is a not infrequent accompaniment of sporadic cretinism. In the endemic form it is still more common.

The various forms of idiocy dependent upon faulty development of the hemispheres in fœtal life, the hydrocephalic and the microcephalic

[1] British Medical Journal, 1896, ii. p. 621.
[2] Archives of Pediatrics, April, 1897.

idiots, and the forms of imbecility associated with the cerebral palsies of children are readily distinguished.

(*c*) *The condition known as fœtal rickets*—achondroplasia or the chondrodystrophia fœtalis—is liable to be mistaken for cretinism. On August 4, 1886, when at Cacouna in the Province of Quebec, I was asked to see two cretins, and found them remarkable rhachitic dwarfs, belonging to this type. As instances of this condition which survive birth are rare, I will here give brief statements with reference to them, and illustrations.

The parents were healthy French Canadians. There were fourteen children in the family, the eldest twenty-seven, the youngest four. Five children had died in infancy. With the exception of the dwarfs, the children were all very healthy and well grown.

FIG. 9.

FIG. 10.

Wilhelmine C., aged sixteen years, height 86.5 cm. (34 inches). (Fig. 9.) The mother did not remember anything abnormal about her as a young infant. She walked when eighteen months old. The head seemed large, and the mother said that the fontanelle did not close until the sixth year. When between three and four it was noticed that she did not develop naturally, and that the joints were very large. She is bright looking and intelligent, but somewhat full and coarse-featured. The head measures 56 cm. The teeth are well formed. She talks fluently and well, and has learned to read a little, and is beginning to write, but she is backward for a girl of her age. The most remarkable phenomenon is the condition of the joints of the long bones. The shafts are short and look thin, and the articulations are very large and irregular. The shoulders are not much affected, but the elbow-joints, the wrist-joints, and the knees and ankles are enormously enlarged. She is a little knock-kneed when she stands. The mobility in the joints is perfect.

Alphonse C., aged eleven and a half years, height 87 cm. (33½ inches).

(Fig. 10.) The mother did not notice anything special about him except that he was late in walking, and the anterior fontanelle did not close until between the third and fourth years. He did not seem to grow much after the fourth year. He presents an identical picture to that of his sister. His head is large, but well formed. He is very intelligent looking and bright, and is good tempered. The articulations are extraordinarily large, and contrast with the smallness and shortness of the shafts of the bones. He is somewhat pigeon-breasted, and when he stands is knock-kneed.

The trunk and head in both these children look almost of natural size, but the shortness of the legs, and particularly the shortness of the shafts of the long bones, is very striking. The thyroid gland was not enlarged in either case. I recognized that the cases were not cretins, and labelled them as rhachitic dwarfs, but it was some years later that I learned the true nature of the affection, namely, the chondrodystrophia fœtalis.

The relation of this remarkable condition to cretinism is very carefully discussed by Kaufmann,[1] and more recently by Bircher,[2] to whose papers the reader is referred. John Thomson, in the *Edinburgh Medical Journal* for 1893, gives excellent illustrations of the adult form.[3] The thyroid is not usually involved, though it has been found absent in a fœtus which presented this condition (Bowlby).[4] The intelligence is not specially disturbed, the facial and cranial characters are not those of cretinism, and myxœdema is not present. The most characteristic feature is the dwarfing, with remarkable shortness of the limbs (micromelia), owing to disturbance of the growth of the shafts of the long bones, and with, in most cases, enormous enlargement of the articulations, due to a hyperplasia of the cartilaginous ends of the bones. Bircher concludes that the condition is quite independent of the state of the thyroid gland. He is in error, however, when he states that the cases of sporadic cretinism described by Cushing and Fagge belong to this group.

(*d*) And lastly, the condition of *infantilism* may be briefly spoken of as in some instances dependent upon disturbed function of the thyroid, and there may be a possibility of confounding the cases with slight grades of cretinism.

Infantilism is a "morphological syndrome characterized by the preservation in the adult of the exterior form of infancy with the non-appearance of the secondary sexual characters." Lamy, in an analysis of Meige's extensive article in *l'Anthropologie* for 1895, gives the fol-

[1] Untersuchungen die über sogenannte fœtale Rachitis (Chondrodystrophia Fœtalis). Berlin, 1892.

[2] Lubarsch und Ostertag, Ergebnisse, Abt. i., 1896.

[3] They are reproduced in Gould and Pyle's "Anomalies," etc.

[4] Pathological Society Transactions, 1884.

lowing description: "Face arrondie, joufflue, lèvres saillantes et charnues, nez peu développé, visage glabre, peau fine et de couleur claire, cheveux fins, sourcils et cils peu fournis. Torse allongé, cylindrique. Ventre un peu proéminent. Membres potelés, effilés de la racine aux extrémités. Une couche adipeuse d'une assex grande épaisseur enveloppant tout le corps et masquant les reliefs osseux et musculaires. Organes génitaux rudimentaires. Absence de poils au pubis et aux aisselles. Voix grêle et aiguë. Larynx peu saillant. Corps thyroïde généralement petit."

Occasionally the subjects of infantilism display opposite sexual characteristics—femininism not only in bodily conformations, but in mental attributes. Apart from hereditary syphilis, in which the condition is not uncommon,[1] infantilism seems rare in this country. It is occasionally seen combined with great obesity. More frequently it is an accompaniment of mental defects in imbeciles and idiots. The onset of puberty, with the development of the secondary sexual characters, is delayed for years after the normal age. The sporadic cretin often presents the characters of infantilism even when above thirty (see photograph of Dr. Sinkler's case), but there are rare instances of infantilism, properly so called, complicated with myxœdematous features, due to loss of function of the thyroid, and such cases might be relieved by appropriate treatment.

IV. The Pathology of Sporadic Cretinism. There are three groups of cases, as noted by Dr. W. Rushton Parker:

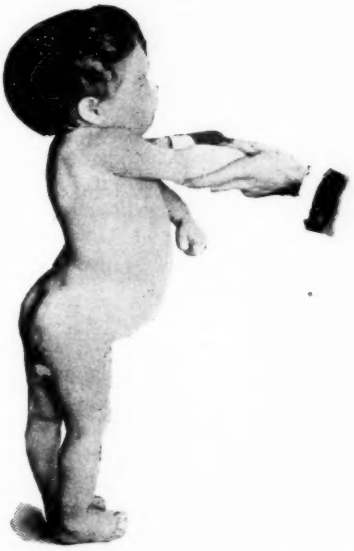
(*a*) *With absence of the gland.* The gland has not developed in fœtal life, or become completely wasted, so that at autopsy no trace of it is found. The child may be born a cretin, which is excessively rare. In a considerable number of the reports on sporadic cretinism the thyroid is stated to be absent, but it is almost impossible to judge by palpation if the gland is very small. In one of Hilton Fagge's cases the gland was thought to be absent, but post mortem there was a thyroid gland of some size, with tumor. Dr. Friend, of Milwaukee, has kindly sent me the full report of a case in which the autopsy showed the thyroid gland to be absent:

Hattie G., female, aged sixteen years and one month. Length of time thyroid tabloids given (Burroughs & Welcome) one year and ten months. During this time she grew from 76.5 cm. to 105 cm. Anterior fontanelle closed within six months after treatment was begun. At the end of seven months seventeen teeth of the second dentition appeared. Within the first two months the myxœdema began to disappear, and within six months was lost, the hair of the head becoming of a finer grade and very thick at the same time. The mental condition improved considerably, and as manifested by the action of the special senses—

[1] See Fournier's excellent description in "Les Affections Parasyphilitiques," 1894.

namely, hearing, sight, taste, touch, and, in a slight degree, speech: the first by recognition of the voices of the nurses; the second by the attention given to the children at play in the wards and to pictures in books; the third by the refusal of certain foods and a preference for certain kinds; the fourth by a desire to grasp firm substances with the hands, so as to lift hesrelf; the fifth by the formation and expression of two distinct words—la, da. With the augmented mental association, motor improvement was also observed. She began to sit up, and by grasping the back of a chair or a bedpost, she could also hold herself standing. These associations were indicated within one and a half years of treat-

FIG. 11.



ment. The tongue ceased protruding within six months after treatment was begun, and the salivary dribbling ceased immediately after the roots of the teeth of the first dentition were pulled and those of the second dentition appeared. The latter appeared within two weeks after the first were withdrawn. As is indicated by the photograph (Fig. 11), the loss of the protruding abdomen was distinct and progressive. The blood-count never rose higher than 3,500,000 red corpuscles, and only a relative increase of lymphocytes. The urine showed no changes worthy of special note. The treatment was continued almost to the date of her death.

In reference to her death, Dr. Friend writes:

"The only cause of death manifested was two drachms of bloody fluid in the lateral and fourth ventricles of the brain. I could not discover from where the blood came, although I examined all the blood-

vessels carefully in the lateral ventricles and about the fourth. They were probably capillary diapedesis. I found all of the veins surcharged with blood, and the dura, extending about one-half inch on both sides of the longitudinal sinus, was of a deep red color. From the symptoms, especially indicated by the sudden onset of fever, I am inclined to think that the ptomaïnes in the extract of the gland may have produced a poisoning. This is, however, difficult to demonstrate. All other organs showed a negative condition. The thyroid gland was absent. The thymus was very large and weighed 64 grammes. The pituitary gland was very small and weighed 0.2 grammes. Microscopically all organs showed an excess of connective tissue. In the posterior wall of the bladder I found imbedded a concretion about the size of a dime."

In reply to a question about details as to the presence or absence of the thyroid gland, Dr. Friend writes that a most careful dissection was made, and there was not even a trace of fibrous tissue as indicating the locality of the gland.

Curling first described the absence of the thyroid in cretinism in the two cases which he reported in 1850.[1]

Bramwell,[2] in a review of the literature in 1892, found ten autopsies, of which, in nine cases in which the condition was noted, the gland was absent. Fletcher Beach states that of 116 cases collected from the literature, there were sixteen autopsies, in fourteen of which the gland was absent, while in two goitre existed.

(*b*) *With atrophy of the gland.* This is a very important group, to which Fagge appears to have been the first to call attention. He gives the case of "a girl, who was stated by her relations to have been perfectly healthy until she was eight years old, when she fell ill with what was supposed to be a second attack of measles, and kept her bed for a fortnight. After her recovery her physical development underwent a remarkable change. Her features were previously well formed; they now acquired the cretinous configuration. Her hair, once black and abundant, became light colored, dry, crisp, and very scanty. She ceased to grow; at the age of sixteen and three-quarter years she was only four feet one inch in height."[3] He suggests that the febrile illness led to atrophy of the organ, and that this was the cause of the supervention of the cretinous state. In Case II. in my first series, the condition seemed to follow an attack of enteritis. Ashby and Wright[4] give the history of a case said to have been well until an attack of enteric fever at seven years of age.[5]

It is interesting to compare these cases with the remarkable instance of operative myxœdema reported by Bruns to the Myxœdema Committee

[1] Transactions of the Royal Medical and Chirurgical Society, 1850, vol. xxxiii.
[2] Atlas of Clinical Medicine, vol. i.
[3] Fagge: Practice of Medicine, vol. i., p. 772.
[4] Diseases of Children, second edition, p. 479.
[5] In the British Medical Journal, May 29, 1897, Dr. Parker has collected ten cases of this kind, in which atrophy of the gland occurred in early childhood, either spontaneously or following some fever. The clinical condition is spoken of as juvenile myxœdema.

of the Clinical Society.[1] The patient at the time of operation was ten years old. Eighteen years after he had become "a dwarfy cretin." He had not grown since the removal of the thyroid, the expression was that of an idiot, there was characteristic myxœdema, with a mental apathy amounting almost to imbecility.

The determination of the atrophy of the gland during life is very uncertain, as pointed out by Fagge. No trace of the gland may be felt, and yet post mortem a well-marked, perhaps somewhat wasted, organ is found. In the recorded autopsies in sporadic cretinism atrophy has not, so far as I can gather, been hitherto found.

Through the kindness of the officers of the Indiana School for Feeble-minded Children at Fort Wayne, I am enabled to report upon a fatal case in which there was extreme atrophy of the gland. The patient, Louise S. (Case VI. of the series), aged fourteen years, born in America, parents not related; no goitre in the family; nationality German. Height 110.5 cm.; circumference of head, 56 cm.; from occiput to root of nose, 33 cm.; from external meatus to external meatus, 26.7 cm.; circumference of neck 28 cm. The skin is loose and flabby, elastic and soft, very abundant. She is a deaf-mute, but appears intelligent. There is no curvature. The thorax is 57.3 cm.; abdomen 68.6 cm. The limbs seem a little enlarged about the epiphyses. There is no goitre. Dr. Delia Howe has sent a subsequent note that she had no treatment until September, 1895. She was then given the thyroid extract, three grains three times a day. She improved in many respects. The protruding abdomen disappeared, and she became very much brighter mentally. She became ill in March, and died of acute tuberculosis in November, 1896. At the time of her death she was seventeen years old, and her height was 127 cm. The thyroid gland weighed 4 grammes. The normal weight of the organ is from 15 to 20 grammes.

I am indebted to Dr. Barker, the Associate Professor of Anatomy in Johns Hopkins University, for a careful description of the condition of the gland, which is of special value, since, so far as I can learn, there has been no histological description of the thyroid in sporadic cretinism. The following is an abstract of his report, which will appear in full in the paper in the *Transactions* of the Congress. To the naked eye there was a very marked increase in the connective tissue separating the lobules, and with low power the acini were seen to be separated from one another. The individual acini were almost solid, except here and there, there were single cyst-like dilatations filled with colloid. High powers showed the most marked atrophy of the gland and certain remarkable transformations in the epithelium. A majority of the acini in the individual lobules possess very narrow lumina, which are often encroached

[1] Clinical Society Transactions, supplement to vol. xxi.

upon by papillary projections, or partially filled with proliferated and desquamated cells. Cells lining the acini are so much altered that not knowing the specimen one would not recognize them as of the thyroid. The cell bodies vary a great deal in size, from small cells equal in dimension to those of the normal thyroid, to large flat structures, actual giant cells. The nuclei of the cells show marked alterations, many of them being huge, bladder-like nuclei. In some nuclei the chromatin is disposed peripherally.

The lumina of the acini vary much in size; some of the alveoli possess no lumina at all. In others only a very small central opening is to be seen. Extremely few contain any colloid. A majority are either entirely empty or show inside them only desquamated cells from the alveolar walls. A few cysts from three to six times the size of the normal alveoli are present, lined by flattened thyroid epithelium. Some of them have evidently been formed by the fusion of several acini. The colloid varies in its behavior to Van Gieson's stain. In some of the few cysts present it is of a bright yellow tint; in others it stains of a reddish-brown, and is then more refractive. In the connective tissue one or two spaces filled with refractive colloid were found. These probably represent lymph vessels, but there is no great amount of colloid inside the lymph spaces, nor is any colloid to be seen within the blood-vessels. Dr. Barker remarks that the findings in this case are in the main confirmatory of those which have previously been made in endemic cretins. The condition is very similar to that which has been reported by De Coulon in the endemic cretinism.[1]

(*c*) *Sporadic cretinism with goitre.* Of the sixty cases collected in this country, seven had goitre. Herein lies a very striking difference between the sporadic and the endemic cretinism. In the latter the percentage of goitre in some statistics has been as high as 60 (Knapp). In Fletcher Beach's collected statistics of 116 sporadic cretins in different countries the thyroid is noted as "not felt" in 73; "felt" in 11, and enlarged in 7 cases. He states that of sixteen post-mortems of which he has been able to find an account the thyroid gland was absent in fourteen cases, and there was bronchocele in two.

Through the kindness of Dr. Darey, of Northwood, Iowa, and of Dr. Kessel, of Cresco, Iowa, I am enabled to report upon and show the photograph of two remarkable goitrous cretins.[2] The father's sister had goitre. There were five children; one died at the age of eight months of diphtheria; one is alive and well, and has no goitre, and three have had goitre, one died at the age of eight years following

[1] Virchow's Archiv, February, 1897.

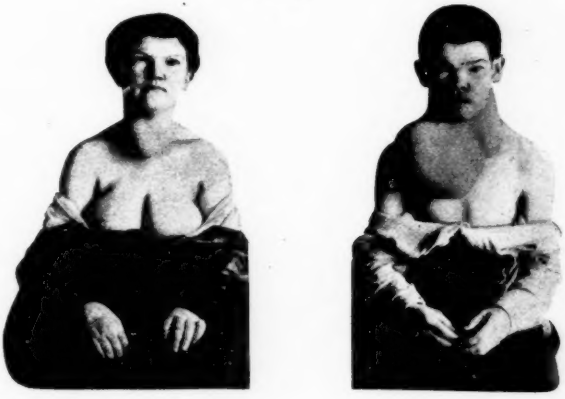
[2] They remind one of Shakespeare's description in the "Tempest" of the

"Mountaineers
Dew-lapp'd like bulls, whose throats had hanging at 'em
Wallets of flesh."

an operation on the goitre. In the two whose photographs are given here the goitres made their appearance when they were quite young infants. The notes of the cases as given by Dr. Kessel are as follows:

Elizabeth L., female, aged twenty-seven years; height four feet seven inches; weight 100 pounds. Talks but little, but is smiling, and in much better spirits than the boy. Head large. Strabismus. Health apparently good. Hears watch only on contact with both ears. Complains of much tinnitus in left ear. Appetite good; sleeps well. Thyroid tumor lobular (three lobes) and hard. (Fig. 12*a*.)

FIG. 12.



a *b*

Robert L., male, aged twenty-nine years; height five feet; weight 105 pounds. Head is small, and almost no intelligence. Complains of difficult breathing, especially on going up a hill or up stairs. Has to lean forward when sitting. Is very hoarse; talks but little, and keeps his chair most of the time. Appetite not good at present. Hears watch on contact only with left ear; at three inches with right ear. Is quite anæmic. Thyroid tumor cystic in large lobe; harder in the smaller lobes. (Fig. 12*b*.)

V. THE RELATIONS OF SPORADIC TO ENDEMIC CRETINISM. When the "cretinoid state," to use Gull's expression, whether developing spontaneously or following thyroidectomy, became recognized as a direct result of the loss of the function of the thyroid gland, it was a simple matter to suggest that true cretinism, both sporadic and endemic, had the same origin. The generic term cretinism may indeed be used to cover these four allied states—endemic, sporadic, idiopathic of adults (myxœdema), and operative—following total excision of the gland. One and the same pathological basis exists in the entire group—viz., loss or perversion of the function of the thyroid; the anatomical basis

is varied—total absence, atrophy or goitre. Kocher,[1] in his masterly presentation of the subject, takes this wide ground. Without exception, so far as I know, recent writers have assumed this position, but quite recently this relationship has been questioned by Bircher, a well-known student of endemic cretinism, in an excellent section on the "Thyroid Gland," in Vol. I. of Lubarsch and Ostertag's *Ergebnisse*, etc., 1896. He concludes "that the cretinoid degeneration is in no way connected with disturbance in the function of the thyroid gland." He bases this opinion upon the persistence of the thyroid, cystic, and degenerated, it is true, in a large proportion of cases. In twenty cases fifteen had goitre, four normal thyroid glands, and in one only it could not be felt. In three cases in which he had extirpated the thyroid in cretins and in the non-degenerated parts he had found normal thyroid tissue. Moreover, a cretin from whom he removed the cystic goitre became myxœdematous, and was temporarily cured by the implanting of a gland; but, as Hanau and Ewald both remark, this is no evidence that the thyroid has nothing to do with cretinism. It would be very much the same as the development of uræmia in a case of chronic nephritis after bilateral nephrotomy.

Both Curling and Fagge believed the conditions which they descirbed to be identical with endemic cretinism. They further have the great merit of recognizing the loss of function of the thyroid as the probable essential factor in the diseaes. Curling's title is in itself suggestive: "Two cases of absence of the thyroid body, and symmetrical swellings of the fat tissue of the neck, connected with defective cerebral development." In seeking an explanation he speaks of "the absence of those changes which result from the action of the thyroid, or on some imperfection in the assimilating processes consequent on the want of this gland; and the facts here detailed may not be without significance in directing the researches of future inquirers into the use of this body." Fagge held that the presence of the thyroid gland was "protective against the occurrence of cretinism." A similar opinion had been expressed about endemic cretinism in 1830 by Troxler (Kocher).

We may ask in the first place, are there any essential differences between the sporadic and endemic forms of cretinism? A single definition covers both conditions—*a chronic affection characterized by disturbance of the growth of the skeleton and soft parts, a remarkable retardation of development, an extraordinary disproportion between the different parts of the body, a retention of the infantile state, with a corresponding lack of mental progress.* One has only to compare the picture given of cretins in Switzerland with those of the sporadic form both in England and

[1] Zur Verhütung des Cretinismus und cretinoid Zustände nach neuen Forschungen. Zeitschrift f. Chirurgie, Bd. xxiv., 1892.

this country, to see that the two states, so far as external characters go, are identical. The differences between the two forms are as follows:

1. The endemic variety develops under local conditions as yet unknown, associated with a peculiar poison of doubtful nature. Bircher states that "the cretinoid degeneration is a chronic infectious disease, the organic miasm of which is associated with certain marine deposits of the earth's surface, and which gains access to the body through the drinking water." It is only of late years that any light has been thrown upon the intimate relation of goitre and cretinism. I have already referred to the opinions of Troxler, Curling, and Fagge, and almost all writers on the endemic form agree with the statement of Morel, that goitre is the first step on the road leading to cretinism. It is possible, however, that changes other than those which lead to goitre may be effective; anything which causes loss of function of the gland.

2. The differences in the changes in the bony skeleton. In the endemic cretin a premature ossification of the spheno-basilar bone has been described, and the fontanelles close early. How far these are constant characters remains to be demonstrated. In the sporadic form the fontanelles often remain open for a long period, even until after the tenth year, and there is a greater retardation in the development of the long bones.

3. The endemic cretin is said not to show the same myxœdematous characters as the sporadic cretin, but the accounts vary in different authors; and the description of the cutaneous condition given by Kocher (whose experience with cretinism has been very large) fits that of the sporadic cretin exactly. Other minor differences are mentioned, such as the shorter life of the sporadic cretin; Ewald,[1] indeed, states that he knows of no instance in which life has been prolonged beyond the thirtieth year, but of the cases which we have collected there were seven beyond the thirtieth year. Another point is the less frequent presence of goitre. The percentage of goitre in endemic cretins has been noted as high as sixty; in the Sardinian Commission there were 3912 instances of goitre in 5923 cases. In the collected series of sixty cases there were only seven with goitre. The two cases with goitre figured on page 397 are good examples of goitrous cretins occurring in a family in which goitre was prevalent.

4. Bircher states that the thyroid extract has no influence upon endemic cretins, a fact which he claims illustrates the independence of loss of thyroid function; but I cannot gather that he, or, indeed, anybody else, has systematically tried the thyroid treatment upon young cases. There is some positive evidence. Kraeplin[2] (who holds that in

[1] Nothnagel's Specielle Pathologie und Therapie, Bd. xxii., the most recent account of cretinism and allied states.

[2] Psychiatrie, fifth edition, 1896.

endemic cretinism disease of the thyroid is the first link in the chain, and that changes in the skin, retardation of growth, and dementia result directly from loss of function of the thyroid) speaks most hopefully of arresting the disease by thyroid feeding if begun early. He adds that even in long-standing cases it has been possible by the thyroidin to wholly reduce the swelling of the skin, and he has seen the menstrual function restored. The psychical features were not much improved.

Prof. Gaule, of Zurich, writes me that he is informed by Kocher that all the cases that are brought to the hospital are treated with the thyroid extract.

Professor Sahli, of Bern, writes that "so far as I know, the observations on operative myxœdema have been confirmed by the thyroid treatment of young cretins." The question is one deserving of the most careful study in the goitre and cretin districts of Europe.

The minor differences between endemic and sporadic cretinism, many of which are still doubtful, cannot for a moment be set against the similarity of the two conditions in almost all points save the local (telluric) influences in the causation of the former; and there only remains the question of the state of the thyroid gland. It is remarkable that in endemic cretinism the observations should be so scanty. Hanau[1] reports three cases, in all of which the thyroid glands showed alterations, being smaller, and in one there was a cyst. The connective tissue was abundant, the alveoli smaller, and in only a few was there the normal colloid. Langhans,[2] in one case, found the gland enlarged, and made up of large alveoli, many of which were empty and only a few filled with refractive colloid. De Coulon,[3] working in Bern, has examined the thyroid gland in four cretins, and in one cretin of bodily form, but good mental development, and after a most thorough histological study, concludes "that the thyroid had not completely degenerated, but the tissue showed changes which indicated that its function was impaired, or at least reduced to a very low ebb. The smallness of the alveoli, their disappearance in consequence of the relative increase in the connective tissue, the absence of colloid in the majority of the alveoli, and in almost all the lymph vessels, so also the condition of the epithelium and the nuclei . . . speak in favor of this view." Also the condition of the existing colloid and its reactions suggested, he thought, important chemical changes of a degenerative character.

In the atrophied gland of Case VI. the lesions were identical with those found in one of de Coulon's cases, which still further strengthens the position of those who hold the essential unity of the process. In

[1] Transactions of the Berlin International Congress.
[2] Virchow's Archiv, Bd. cxxviii.
[3] Ibid., Bd. cxlvii., 1897.

neither form is the state of the thyroid gland always the same; loss or serious perversion of function is the important factor, and this may follow absence, atrophy, or hypertrophy. There is no fixed stamp or type of cretin; the range is from a mere mass of humanity without a ray of intelligence, to the high-grade cretin with but slight bodily and still slighter mental changes; and it is only reasonable to believe that to these grades are correlated varying degrees of thyroid degeneration. Bircher lays great stress upon the presence of normal-looking tissue in the glands which he excised from cretins, but gives no statement of any histological study; nor is the development of myxœdema in one of these cases, and of tetany in another, inconsistent with the view that the thyroid is the seat of the essential lesion, since the activity of the gland may have been sufficient only to maintain the organism at a certain plane of cretinoid existence.

If the experimental work on the importance of the para-thyroids should be confirmed, the whole question will have to be reviewed from this standpoint.

There are, of course, gaps in our knowledge, but the evidence at present available warrants, I believe, the conclusion that the changes characteristic of cretinism, endemic as well as sporadic, result from *loss of function of the thyroid gland.*

THE INFLAMMATIONS OF THE COLON AND THEIR TREATMENT.

By Francis Delafield, M.D.,
of New York.

The descriptions of dysentery to be found in books, and the ideas concerning dysentery which exist in the minds of physicians, are derived largely from the consideration of four sets of cases: the severe and often fatal dysentery of tropical countries, the dysentery which has always accompanied armies, the mild catarrhal dysentery of temperate climates, and the more recently described amœbic dysentery.

For those of us who live and practise in temperate climates something more is required. There are a number of points concerning which we need the teachings of local experience. The causation, lesions, prognosis, and treatment of inflammations of the colon as they occur in ordinary practice in temperate climates have not as yet been studied in sufficient detail.

This paper is an attempt to describe the different forms of colitis which are to be seen in the city of New York and its suburbs.

In New York, while the disease is not at most times very prevalent,

yet the variety of cases is considerable, so that in the course of years one may see a number of cases of inflammation of the colon which differ widely from each other.

I. The most common of all the forms of colitis, and the one with which every physician is familiar, is that in which there are no structural changes in the wall of the colon, nothing but congestion, an increased production of mucus, and an exudation of serum. It is usually called acute catarrhal colitis or acute catarrhal dysentery.

For practical purposes it is necessary to divide this class of cases into two varieties: one characterized by the increased production of mucus, the other by the increased exudation of serum.

1. *Colitis with an increased production of mucus.* As this form of colitis is rarely fatal in adults, our knowledge of the lesions is derived from it as it occurs in children, as it is associated with other forms of colitis, as it is produced experimentally in animals, and from the character of the discharges from the bowels during life. The inflammation begins regularly in the rectum, and either remains confined to this part of the colon or extends upward. But in children a large part of the colon and the lower end of the ileum may be inflamed from the first. The glandular and connective tissue coats are more or less swollen and congested and infiltrated with serum and a few leucocytes. There is an increased production of mucus, which coats the inner surface of the colon and is passed by the patient. There is often a moderate bleeding from the surface of the inflamed mucous membrane. The epithelial cells which line the glandular tubules are distended with mucus; the superficial cells desquamate and are mixed with the mucus. The solitary lymph-nodes in the walls of the intestine are often swollen. (Fig. 1.)

FIG. 1.

Acute catarrhal colitis. Increased production of mucus. Desquamation of epithelium. Swelling of lymph-node.

In children there may also be an infiltration of the glandular coat, with pus-cells and necrosis of the swollen lymph-nodes, with the formation of little ulcers

It must be admitted that, although this form of colitis is of frequent occurrence, our knowledge of its causation is not very definite. A variety of bacteria have been found in the passages, but no one of them can be considered as a certain cause of the inflammation. As probable causes may be enumerated impure water and milk, unripe or decayed fruits and vegetables, crowded rooms, and hot weather.

If the inflammation is confined to the lower end of the colon, it regularly runs its course within a week, and the patient recovers. The principal symptoms are the local ones: pain in the rectum, an irritability of its mucous membrane, which makes it try to discharge everything in contact with it, and the frequent passage of small quantities of blood and mucus. But little fecal matter is discharged. In addition there is a moderate rise of temperature, with more or less prostration. Some of the patients do not go to bed, some do not even stop work.

If, however, the inflammation not only involves the rectum, but extends up into the colon, the patients are more seriously ill, especially if they are young children. The quantity of mucus discharged from the bowels is considerable, and very little fecal matter is passed for one or two weeks. As the inflammation subsides the quantity of mucus decreases and that of fecal matter increases. In these patients the temperature is higher, the duration of the disease longer, and the prostration greater. Adults regularly recover, but children often die.

The ordinary method of treating these patients is by rest in bed, a fluid diet, castor oil or sulphate of magnesia to empty the colon of fecal matter, and combinations of bismuth and opium.

Another satisfactory plan is to irrigate the rectum every day with from one to two quarts of an infusion of flaxseed, and give no medicine.

Such an acute colitis is sometimes followed by a chronic colitis, which may continue for years. Such a chronic colitis regularly follows one of two types.

(*a*) The chronic inflammation is confined to the rectum, and is attended with a gradual thickening of the glandular, connective, and muscular coats. The patients have frequent small passages of mucus and blood. They lose flesh and strength as long as the colitis continues. The most efficient treatment is by local applications to the rectum and residence in a dry inland climate. But the natural tendency of the inflammation is to continue, and many of the patients do not get well.

(*b*) The chronic inflammation may involve any part of the colon or its whole length. There are no anatomical changes in the wall of the colon. The feces are sometimes formed, sometimes fluid. Mucus is passed in varying quantities and at varying intervals. According to the position of the inflammation in the colon the mucus is discharged before the feces, with the feces, or after the feces. The patients suffer from more or less abdominal pain and loss of nutrition. Many of them

become hypochondriacs. Treatment is often difficult, and it is well to remember that the general health of the patient is of more consequence than the quantity of mucus which he discharges from the bowels. This condition must not be confounded with the so-called "membranous enteritis."

2. *Acute colitis with a large exudation of serum.* These cases are not to be confounded with the cases which I have described elsewhere under the name of "morning diarrhœa." The condition is an inflammatory one, and not a functional disturbance of the intestine.

The disease is not a fatal one, and I have never had the opportunity of seeing the colon of one of these patients. The character of the symptoms is such as to make one believe that the inflammation involves the upper part of the colon, and that the exudation of serum into the cavity of the gut is the principal feature of the morbid process.

This form of colitis is especially common when, during the summer, there is a week of continuous hot weather. Cases are seen, however, at all times of the year. How far water or milk or food may be responsible for an attack it is difficult to say. In some persons there is a well-marked predisposition to this form of colitis, so that they suffer from attacks summer after summer.

The patients have at first a feeling of discomfort in the abdomen or colicky pains, a moderate amount of prostration, and sometimes nausea. Then there is the feeling of the necessity for emptying the bowels. The patients go to the water-closet, sit down, the sphincter opens, and a large quantity of fluid runs out without any effort of expulsion. The fluid consists of fluid feces, serum, and mucus. The quantity of each discharge is considerable, sometimes as much as two quarts.

There are a number of such discharges during each twenty-four hours. The patients are not always confined to bed, but they are weak and miserable. As a rule, there is no febrile movement. Such an attack may only last for a few days, or it may continue for weeks or months.

TREATMENT. A large number of the cases get well under a variety of treatments or even without any medication at all; but, on the other hand, there is a considerable number of cases in which the disease continues in spite of treatment. Every year I see several patients in whom the colitis has continued for months in spite of treatment by diet, opium, bismuth, and the intestinal antiseptics. The best plan for the management of these patients is this: A milk-diet except for one solid meal a day, one-fourth of a grain of codeia after each movement of the bowels, and five minims of castor oil with five grains of salol, to be taken together four times a day.

II. There is a form of colitis of which the most marked anatomical feature is the infiltration of the connective tissue coat of the colon with

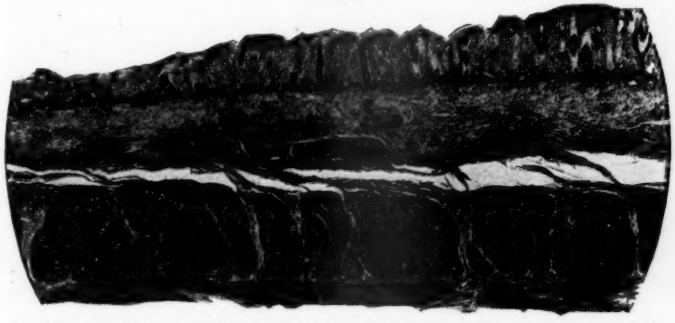
pus-cells. (Fig. 2.) This infiltration is a large one, so that the wall of the colon is irregularly thickened. The glandular coat is also infiltrated

FIG. 2.

Purulent colitis. Infiltration of the connective-tissue coat with pus-cells.

with pus, but to a much less extent. I have only seen a few cases of this form of colitis, so that I cannot give a complete account of it. The inflammation involves the upper rather than the lower part of the

FIG. 3.



Productive and necrotic colitis. Growth of connective-tissue cells in the glandular coat, with destruction of the tubules.

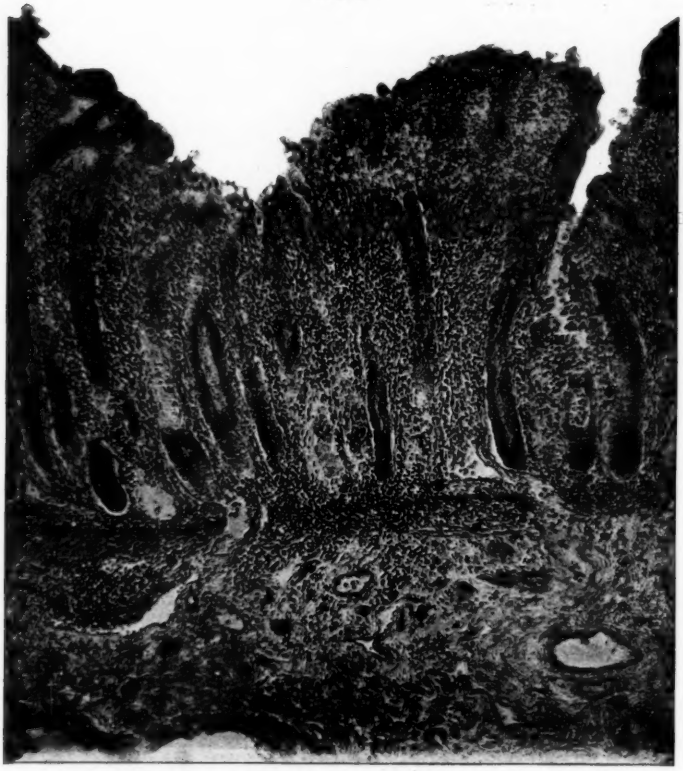
colon. The passages are diarrhœal and not dysenteric. The patients look as if they were suffering from septic poisoning. The disease may

prove fatal within a few days or may continue for so long as a year. Treatment is altogether unsatisfactory.

III. There is a form of colitis to which I wish to call especial attention, because it is one of the most important forms of the disease that we have to deal with in New York. (Fig. 3.)

The anatomical characters of this form of colitis are: an increased production of mucus, an exudation of serum, an emigration of white blood-cells, a growth of new connective tissue in the glandular coat and the connective tissue coat, and small areas of necrosis of the glandular coat.

FIG. 4.



Productive and necrotic colitis. Infiltration of the glandular coat with pus-cells.

The inflammation prefers the upper part of the colon, but it may involve its entire length or be confined to its lower third. (Fig. 4.)

The gross appearance of the colon is that of congestion of the mucous

membrane, with perhaps a coating of mucus—the ordinary appearance of an acute catarrhal inflammation; but if we look more closely we see that in addition there are numerous small, superficial ulcers, many of them so small that they cannot be seen with the naked eye. In the old and severe cases, however, instead of these small ulcers we find a destruction of large areas of the glandular coat. (Fig. 5.)

FIG. 5.

Productive and necrotic colitis. Circumscribed necrosis of the glandular coat, forming very small ulcers.

The morbid changes belong to the glandular coat, but may extend to the superficial layers of the connective-tissue coat. The destruction of the glandular coat is effected by simple necrosis or by an infiltration with pus-cells. The ulcers do not have overhanging edges. Between the ulcers some of the tubules show necrosis of their epithelium, while some are obliterated by the growth of cells between them. The tissue between the tubules is thickened by a growth of connective-tissue cells, or by an infiltration with pus-cells, or by both. There may also be a moderate infiltration of the superficial layers of the connective-tissue coat with pus-cells and connective-tissue cells.

I have never been able to make out the causation of this form of colitis. It is not infrequent in New York. It is seen both in hospital and private practice. It occurs at all seasons of the year. Whether it is caused by impure water or milk or food I do not know. The feces show the usual variety of micro-organisms, but the general features of the disease are those of a streptococcus infection.

The invasion of the disease is sudden or gradual. If it is sudden, the patients are attacked with vomiting, frequent passages, abdominal pain, prostration, and a rise of temperature. The first passages are diarrhœal—large or small—and composed of fecal matter, serum, and mucus; or dysenteric—small, painful, and composed of mucus and blood. The dysenteric passages do not continue; they belong to the first days of the disease. The prostration is considerable; the patients look sicker than they do with an ordinary catarrhal colitis. Sometimes there is even a sort of shock given by the invasion of the disease; the patients may have attacks of syncope.

If the invasion is gradual, the patients begin with what seems to be an ordinary diarrhœa—three to five loose fecal movements a day, with more or less colicky pain or constant abdominal pain. There is at first no rise of temperature. The patients gradually lose flesh and strength, but it may be several weeks before they go to bed. And yet it is a matter of much importance that the character of the colitis should be recognized and the patients put to bed during this early stage of the disease.

As the disease goes on the passages continue to be frequent and of considerable size. They are composed of fluid feces, serum, mucus, and often blood. The mucus is present in considerable quantities; it is diffuse or in the form of nodules. If the patients improve, the fecal matter increases in quantity and becomes more consistent, while the quantity of serum, mucus, and blood diminishes. The abdominal pain, whether colicky or constant, continues. There is no appetite. In some cases nausea and vomiting are very troublesome symptoms. There is usually a rise of temperature in the afternoon, even in the chronic cases. The patients steadily lose flesh and strength. Of the cases which recover some run their course within four weeks and recover entirely, and yet while the disease is going on the patients are sick enough to cause much anxiety. But there is a considerable proportion of cases in which the disease continues for months before the patients get entirely well. And, finally, there are patients who are under observation for years who often seem almost well, but yet always relapse.

In the fatal cases I have seen the disease proved fatal in seven days, but that was in a person already exhausted by privation and exposure. The rule is that the disease continues for a number of months before the patients die. Occasionally we see such a colitis in its early stages in persons who die from pneumonia. The prognosis is serious. A moderate number die from the disease, and in a very considerable number the disease is protracted for months.

The most important time for the treatment of this form of colitis is during the early stages of the disease. It is in the patients who are neglected at first that we see the protracted forms of the disease.

No matter how mild the invasion of the disease is the patients should at once be put to bed and on a diet composed principally of milk, and this management must be kept up until all evidences of acute inflammation have disappeared.

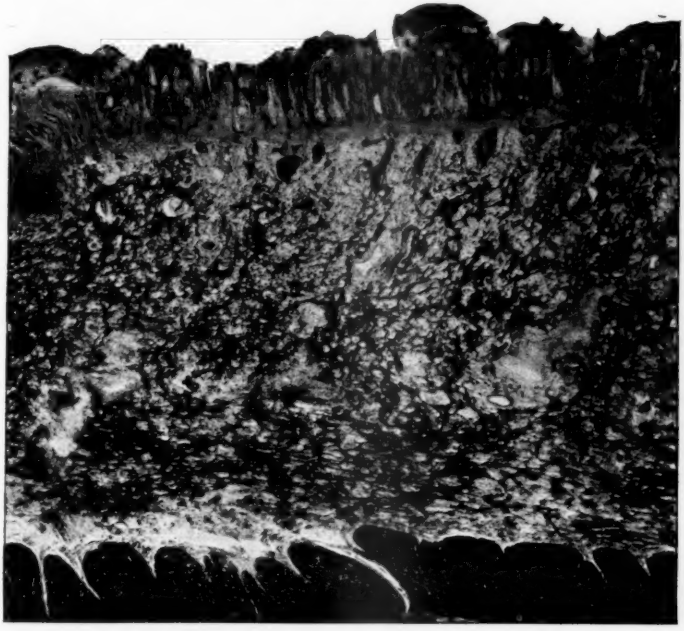
In the chronic cases, on the other hand, it is important that the patients should get out of doors and eat a sufficient quantity and variety of food. As a rule, these patients do best in a dry, elevated, inland climate.

During the earlier stages of the disease irrigations of the rectum are

of service, and even in the chronic cases such irrigations may be used with advantage from time to time.

As regards medication, it has seemed to me that I have obtained the best results, both in the acute and chronic cases, by the use of combinations of opium, salol, and castor oil; but I must admit that these remedies sometimes fail, and that I see patients recover under other plans of treatment. In the chronic cases the patients are apt to take in the course of the disease a considerable number of drugs. For example, a patient who was sick for eleven months, and was successively under the

FIG. 6.



Croupous colitis. Commencing necrosis of the glandular coat, infiltration of the connective tissue coat with fibrin.

care of four different physicians, received the following drugs: Salol, castor oil, tincture of opium, dilute sulphuric acid, Blaud's pills, sulphate of morphine, subnitrate of bismuth, sulphate of strychnine, subcarbonate of bismuth, salicylic acid, nitrate of silver, resin of turpentine, salicylate of bismuth, naphthaline, sulphate of quinine, ichthyol, sulphide of calcium, liquor potassæ, codeia, acetate of lead and opium,

dilute nitric acid, carbonate of guaiacol, bone-marrow, Fowler's solution of arsenic, tincture of cubebs, tincture of hyoscyamus, phenacetin, acetanilid, biniodide of mercury, iodide of potassium. He also received enemata of starch and laudanum and of corrosive sublimate 1 : 10,000. The man went quietly on with from three to five passages a day, composed of fluid feces, mucus, and sometimes blood, with an afternoon temperature between 100° and 103° F., with progressive loss of flesh and strength. During the tenth month of his illness the afternoon temperatures became lower, and the man began to gain flesh and strength. After this the blood and mucus gradually disappeared from the passages, and finally at the end of the eleventh month he seemed to be well.

IV. There is a form of colitis characterized by the combination of an exudation from the bloodvessels, which forms fibrin, and of necrosis. This is commonly called croupous or diphtheritic dysentery.

The inflammation regularly begins in the rectum. It may remain confined to this part of the colon, or it may extend upward and involve the whole length of the colon and even the lower part of the small intestine. (Fig. 6.)

The irritants which cause the colitis seem to act, according to their virulence, upon the glandular coat alone, or upon the connective-tissue coat also, or upon the whole thickness of the wall of the colon. In the majority of cases the inflammatory changes are produced not uniformly, but in patches. (Fig. 7.)

In the milder cases, therefore, we find the inner surface of the colon studded here and there with little patches of false membrane. Vertical sceretions of the wall of the colon at these points show a layer of fibrin and pus, necrosis of the superficial portions of the glandular coat, and a little infiltration of the glandular coat with fibrin and pus.

In the more severe cases the layer of fibrin on the inner surface of the colon is thicker, large infiltrations of fibrin are found in the connective-tissue coat, and even the muscular and peritoneal coats are involved in the exudation. The necrosis involves the whole thickness of the glandular coat, often extends into the connective-tissue coat, and may involve the whole thickness of the wall of the colon.

The dead tissue soon sloughs away and leaves ulcers of varying number, size, and depth.

In New York this form of colitis belongs to the autumn months. Not infrequently people bring it back to town with them from the country. In such people there may be a history of contaminated drinking-water. The behavior of the inflammation is that of one caused by the presence of pathogenic bacteria, and such bacteria can be demonstrated in the feces and in the wall of the colon. But it is not to be forgotten that identical anatomical changes are produced by

poisoning with corrosive sublimate, so that it is possible that such a colitis may be produced by other irritants than bacteritic toxins.

Fig. 7.

Croupous colitis. False membrane, necrosis of the glandular coat, infiltration of the connective-tissue coat with fibrin.

Symptoms. The patients have numerous small, painful passages of blood and mucus. If the inflammation extends above the rectum, they also pass large quantities of brownish fluid. There is nearly constant rectal pain, irritability, and tenesmus. There may also be colicky pains and strangury. Many of the patients vomit, especially at the beginning of the disease. There is regularly a well-marked febrile movement throughout the disease, but in some of the bad cases the temperature is low throughout. In the severe cases the prostration is marked, the heart's action is rapid and feeble, delirium and stupor are developed. The disease lasts for from one to six weeks.

Prognosis. The prognosis is serious on account of the severe character of the lesion, the general poisoning of the patient, and the permanent changes left in the wall of the intestine. If the whole length of

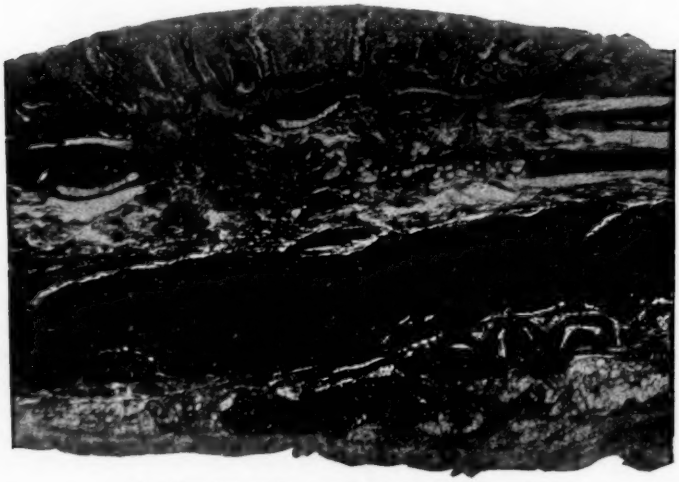
the colon is involved, the patients rarely get well. If the ulcers are large and deep, although the patient recovers from the inflammation, he is left with a colon so badly damaged that he is always an invalid.

All the patients are to be put to bed and kept on a fluid diet. Most of them require some preparation of opium to keep them comfortable. Many of them need alcoholic stimulants. It is important to distinguish whether the inflammation is confined to the rectum or whether it extends higher up. If it is confined to the rectum, it can be treated by irrigation alone; if it involves a larger part of the colon, drugs must be given in addition to the irrigation. Two quarts of an aqueous solution of corrosive sublimate, 1 : 10,000, have given me the best results as an irrigation. Ipecac, in 20-grain doses once or twice a day, seems to be the most efficient drug. I have also seen good results, however, from the early use of salol in 5-grain doses every hour.

V. There is a form of colitis in which the characteristic necrotic and inflammatory changes seem to be due to an infection with the amœba coli.

I have examined the colon in eleven fatal cases. In all but one the entire length of the colon was involved; in that one only the upper two-thirds.

FIG. 8.



Amœbic colitis. Diffuse necrosis of the glandular coat.

The main infection with the amœbæ is in the connective-tissue coat, and it is in this coat that the morbid changes begin. The amœbæ seem to cause swelling and necrosis, while other inflammatory changes may

be caused by an additional infection with streptococci or other bacteria. The exact method of the necrosis varies somewhat, and several different forms may be present in the same colon. (Fig. 8.)

FIG. 9.

Amœbic colitis. Circumscribed necrosis and swelling of the connective-tissue coat.

(*a*) The necrosis may be confined to the glandular coat; there is swelling of the intertubular tissue and death of the tubules. In this way considerable portions of the glandular coat are destroyed and the connective-tissue coat is laid bare. At the same time there is a growth of large and small cells in the connective-tissue coat. (Fig. 9.)

FIG. 10.

Amœbic colitis. Ulcer formed by circumscribed necrosis of the connective-tissue coat.

(*b*) There are circumscribed thickenings of the connective-tissue coat, which soon become necrotic. In this way the glandular coat is undermined, and ulcers with overhanging edges are formed of varying size and depth.

(*c*) Large portions of the whole thickness of the wall of the colon are swollen and completely necrotic. The patients usually do not live long enough for these dead portions to slough away. (Fig. 10.)

In four of the cases there were amœbic abscesses in the liver. In one case there were amœbic abscesses in the lower lobe of the left lung. It is not easy to determine how persons become infected with amœbæ in New York, where the drinking-water all comes from the same source. Most of the patients had been living in the city for several years.

The invasion of the symptoms is either acute or gradual.

In the acute cases the patient is suddenly attacked with colicky pains and diarrhœa, often with nausea and vomiting and sometimes a rise of temperature. The stools are frequent, fluid, and sooner or later contain blood and mucus. The quantity of blood may be considerable. (Fig. 11.)

FIG. 11.

Amœbic colitis. Ulcer formed by circumscribed necrosis of the connective-tissue coat.

In the more gradual invasion there is at first nothing but a painless diarrhœa—several loose, fecal stools in the twenty-four hours.

The patients have no appetite; they lose flesh and strength and become anæmic. In some of them the symptoms are continuous; in others there are remissions and exacerbations. Although the temperature may reach 104° F., the febrile movement is not a feature of the disease. The most noticeable symptoms are the frequent stools of fluid feces, bad-smelling fluid, mucus, and blood, the pains in the abdomen, and the progressive loss of flesh and strength. The disease may only continue for ten days or it may be protracted over several months. The same patient may have several attacks of the disease, even for a number of years.

A serious complication is the formation of the amœbic abscesses of the

liver, which may occur at any time in the course of the colitis, either in mild or severe cases.

Of less frequent occurrence are the amœbic abscesses in the lungs, with cough and bloody, foul-smelling expectoration.

I have seen one case in which the pulmonary symptoms preceded the diarrhœa by three days.

Perforation of the intestine followed by collapse or by peritonitis sometimes occurs. There may also be peritonitis without perforation.

I have seen one case, which lasted for six weeks, with temperatures up to 105° F., with the combined symptoms of a typhoid fever and a colitis. After death there were found the ordinary lesions of typhoid fever in the ileum and the mesenteric glands, and of amœbic colitis in the colon.

Prognosis. The prognosis is serious, not only from the extent of the destruction of the wall of the colon, but from the liability to abscess of the liver, abscess of the lung, and peritonitis.

The indications are to use irrigations and drugs. The best irrigation is a solution of corrosive sublimate, 1 : 10,000. The most useful drugs are ipecac in large doses and castor oil in small doses.

VI. There is a form of necrotic colitis of which I have only seen a few examples. They were all hospital cases with imperfect histories and no account of the passages from the bowels. The history of one case will serve as a sample :

A woman, aged about fifty years, of intemperate habits, was brought into the hospital twenty-four hours before her death. It was said that for several months she had been losing flesh. For three days she had been vomiting coffee-ground matter. Nothing was learned concerning the passages from the bowels. She was in the moribund condition when brought into the hospital, with a temperature of 96° F., pulse of 160, and still vomiting coffee-ground matter.

At the autopsy there were found general bronchitis, small abscesses in the kidneys, cirrhosis of the liver, a normal stomach and small intestine. The colon, for a distance of three feet down from the ileo-cæcal valve, was in a condition of intense congestion. There were a number of small and large black thickenings of the glandular coat.

In the glandular coat there was some increase of mucus in the tubules and a little growth of cells between them. In the black thickenings the bloodvessels were distended with blood. The glandular and connective-tissue coats were infiltrated with pus-cells. The glandular coat was necrotic. The circumscribed character of these areas of extreme congestion and purulent infiltration would suggest that they were caused by infectious emboli.

There are, then, five forms of colitis which come under observation in New York.

1. *Acute catarrhal colitis.* An inflammation attended with the production of increased quantities of mucus and serum, but without struc-

tural changes. Its natural disposition is to run a short course and terminate in recovery, and it is therefore treated successfully in a variety of ways. In children, however, the disease may be fatal, and in adults it may be followed by chronic colitis.

2. *Acute purulent colitis.* This is not a severe catarrhal inflammation, but is a purulent inflammation of the connective-tissue coat. This coat is thickly infiltrated with pus, while the changes in the glandular coat are secondary. The symptoms are largely those of septic poisoning, and the disease is regularly fatal.

3. *Acute productive and necrotic colitis.* An inflammation which involves principally the glandular coat. The main features are the necrosis and the growth of new tissue. To these correspond the septic symptoms and the disposition of the disease to continue. The symptoms may resemble those of catarrhal or of amœbic colitis. The favorable cases last as long as three or four weeks, the unfavorable cases last for months. A moderate number of the cases are fatal.

4. *Croupous or diphtheritic colitis.* An inflammation of distinctly infectious character, and one which is often fatal. It is an old and well-recognized form of colitis.

5. *Amœbic colitis.* The inflammation is caused by the infection of the connective-tissue coat of the colon with the amœba coli. The presence of this organism causes a variety of necrotic and inflammatory changes. It is this form of colitis which is so often associated with abscess of the liver.

As regards the treatment of these different forms of colitis, it seems to me that the first thing to determine is whether the inflammation is confined to the lower end of the colon or extends higher up; the second thing to determine is whether the inflammation is or is not accompanied by necrosis of portions of the wall of the colon.

If the inflammation is confined to the lower end of the colon, it can be treated by irrigation alone; if it is confined to the upper two-thirds of the colon, it can be treated by drugs alone; if it involves the whole length of the colon, both drugs and irrigations are necessary.

An irrigation for an adult should consist of as much as two quarts of fluid, and the fluid must run in and out freely.

If the colitis is acute and without necrosis, the best fluid is an infusion of flaxseed; if it is a colitis with necrosis, solutions of corrosive sublimate, chloride of zinc, and formalin have given me the best results.

If the inflammation involves the upper part of the colon and is without necrosis, the preparations of opium and of bismuth are usually all that are necessary; but if it is a colitis with necrosis, ipecac in large doses, castor oil in small doses, nitrate of silver, salol, and naphthalin are the most useful drugs.

THE OPERATIVE TREATMENT OF IRREDUCIBLE SUBCUTANEOUS FRACTURES.

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The benefits accruing from modern methods of conducting an operation are so constantly in evidence that their discussion at this time seems trite. Yet it is only by keeping them in view that tentative suggestions in new fields can eventuate in things accomplished. Therefore only would I allude to the safety to life and limb with which compound fractures are now treated. A death following a compound fracture from wound infection is now a *rara avis*, even in hospital wards that are far from surgically clean. Barring the paramount danger of infection and its sequel, necrosis, there are factors which would render the prognosis as to restitution to the normal in compound fractures quite as good, if not better, than in those uncomplicated by a broken skin. The directness by which fragments can be moulded into position and retained by sutures, if need be, the ease with which intervening muscle or membrane can be removed, and the certainty with which an hæmatoma can be avoided at the site of injury, are data which, were it not for the danger of infection, would make the greater almost to be preferred to the lesser injury. So has the treatment of compound fractures been bettered by the grace of modern methods. In the absence of a like positive influence in the treatment of simple fractures, the results here obtained, on the whole, are much as they were during the three decades intervening between the introduction of anæsthesia and antiseptic surgery. Except in fractures of the simplest varieties, we share with our predecessors the anxieties from incomplete reduction, deformity, shortening, and of partial or complete ankylosis in articular and pararticular fractures. In regard to these as a class, indeed, only two steps in advance have been taken, and one of these is in the nature of a don't. There is an unanimity of opinion that by prolonged immobilization joint-function is jeopardized. To effect the best functional use of a joint "there must be a proper balance between rest and motion; rest of the broken bone, motion of the joint muscles, tendons, fascia. But even the methods to these ends are the subject of much controversy." This is one step. The other, a very decided advance, has been made in the method of overcoming shortening in exceptional cases by tenomyotomy. Its range of utility has been widespread since Dieffenbach first divided the triceps for fracture of the olecranon. Division of the tendo Achillis, the hamstring tendons, and of the sterno-cleido-mastoid may be done when it is evident that muscular contraction alone is responsible for the shortening or

deformity. In this connection it is amusing by way of contrast to quote from Ricard on *Fractures*. In 1890 he wrote: "It is useless to add that to-day no one has recourse to tenotomy; not on account of the terrible mortality which Malgaigne had forty years ago—three deaths in five cases—but because tenotomy has become superfluous since anæsthesia and continuous extension are used in the overcoming of muscular contractions."

Cases are encountered in which anæsthesia, extension, and tenotomy combined will fail to reduce deformity, and in which we seem helpless to prevent an unsatisfactory result. Aside from fractures of the patella and of the femoral neck, wherein anatomical data for bony union are deficient, we are wont at times to see results far from good in fracture of the lower end of the tibia, of the femoral shaft, of the lower epiphysis of the femur, of the radius, of the elbow, and of the clavicle. The use of the cathode ray, where feasible, will doubtless tend to lessen the frequency and extent of post-fracture deformities by making easier the apposition of fragments. Yet there will be cases in which a clear picture of the lines of fracture will avail but little or nothing in the therapy. The interposition of muscle, ligament, or fascia, or of a loose fragment of bone in the line of fracture will, at times, prevent its reduction and from the very beginning forbode a result dreaded in proportion to the deformity entailed and its ensuing limitations of motion. In view of the successes now almost uniformly achieved in elective operations on the bones and joints, the question might well be discussed, whether, in otherwise irreducible simple features, early operative intervention should be refrained from. Such has been the surgical teaching of the past.

Even very recent writers are silent upon the subject, and the consultant would find little or no justification in converting a recent subcutaneous fracture into an open one to obtain a permanent better result. Nevertheless, individual points have been made in this direction: by Senn, in the direct fixation of fragments in injuries of the hip, by McBurney in fractures of the humerus complicated by dislocation, and very recently by J. W. Hearn (reported by Spencer), in the suturing of the broken clavicle. An unique position in the immediate operative therapy of fractures is occupied by the patella, fractures of which have often enough been united to render a verdict against immediate interference. Since it was my privilege, in 1891, to see Schede overcome a four-inch shortening of the femur from oblique fracture six months after the injury, I have believed that in certain cases an interference before union had resulted would be preferable to the certainty of deformity. The cases in which operation would be indicated are necessarily few. Nevertheless, seven cases have come under my observation in

which the fracture was exposed and directly treated. I beg to submit brief histories of these cases:

CASE I. William F., aged twenty-four years, single, German; beer-wagon driver, admitted to the Good Samaritan Hospital May 1, 1892.

Diagnosis. Fracture of the lower end of the right tibia. In jumping to keep a brick wall from falling on him he landed full on his feet, but his right ankle turned, producing a fracture of the lower end of the tibia. The condition presented made the exact nature of the lesion difficult to determine. There was a very extensive hæmatoma about the ankle, very great widening of the joint, with crepitus easily felt. Under the extensor tendons below the line of the joint, surrounded by an hæmatoma, could be felt the loose fragment, which seemed to have the shape of the articular portion of the astragalus. Under anæsthesia every effort was made to bring this portion of bone into its normal relation between the tibia and fibula, but without success. A long anterior incision was, therefore, made over the joint and the loose piece of bone removed. It proved to be the outer portion of the tibia. It was pyramidal in shape, and the base was covered with cartilage. It measured an inch and a half in length and half an inch in thickness at its widest part, and evidently came from the articular end of the bone. Except for a small strip it was entirely detached. Through the incision the fracture of the lower end of the fibula was recognized. All clots having been removed, deep sutures were resorted to, the external wound partly filled with gauze, and retentive dressings applied. The first dressing remained in position ten days, and when it was removed showed the wound was dry. Second dressing applied on the twentieth day. When this was removed, on the thirtieth day, the joint was freely movable, and the splints were left off except at night.

June 14th. The splints were finally left off, and the patient was able to bear his weight upon the foot. Only slight impairment of ankle movement.

20th. Patient discharged well, walking without crutch or cane.

CASE II.—John H., aged six years. (Reported with permission of Dr. Krouse, in whose service the case occurred.) November 19, 1895, patient was thrown from a street car, sustaining a compound comminuted fracture of the right leg, and what at first seemed to be an insignificant injury of the lower portion of the left thigh. There was a good deal of contusion here, and quite an extensive hæmatoma. The condition of the right leg necessitated immediate amputation below the knee. During the recovery from the amputation, which did not unite by first intention, the hæmatoma in the lower portion of the left thigh disappeared and revealed an epiphyseal separation at the lower end of the femur. It was evident that the epiphysis was tilted upward and forward, and that the lower end of the shaft was protruding into the popliteal space, where part of its lower square surface could be clearly mapped out. The leg was retained in flexion with weight extension, in the hope of reducing the dislocation. The general condition of the patient did not justify an operative interference until December 30th, when an open incision was determined upon. An incision about three inches in length made in the mid-line of the popliteal space very readily exposed the transverse line of separation. The square surface of the shaft, without any adherent cartilage, was readily laid bare. The upper

surface of the epiphysis, with its cartilaginous covering firmly adherent, had been tilted forward so that it was found to rest against the anterior surface of the upper fragment. Callus had not been thrown out. Extension failed to relieve the dislocation, even after the division of the nearest hamstring tendons. It was only after half an inch or more of the lower end of the femoral shaft had been chiselled away that the epiphysis could be tilted on its axis to a degree permitting approximation of the surfaces. After hæmostasis had been cared for, the wound was tightly closed except for silkworm-gut drainage. The leg was dressed in right-angle flexion.

During seven days after the operation it appeared as though primary union would result. This, however, was not accomplished, for the evidences of infection were seen on the ninth day, when the dressings were changed. Stitches had to be removed, since there was some suppuration.

The subsequent history of the case was that of ordinary infected compound fractures. The suppuration, which was at first extensive, gradually subsided, and that without necrosis. The patient was admitted to the Jewish Hospital on November 19, 1895, and remained in the institution until May 29, 1896, when he was finally discharged well.

This patient attends school regularly. In its growth the femur has kept pace with its fellow of the opposite side, although a sinus has formed, which I have been informed leads to a small sequestrum.

Case III.—H. P., male, aged forty-three years, admitted to the Jewish Hospital June 5, 1892. Sustained a fracture of the right radius six weeks before admission. There are characteristic silver-fork deformities and radial abduction. The fingers are flexed, while extension of the fingers and wrist is limited. Pararticular firm œdema is very marked. During two days the arm and hand were retained in suspension to reduce the swelling. It was then evident that reduction had not been accomplished, although a large callus had been thrown out. The dorsal prominence of the lower fragment was very decided.

Operation, June 6th. An incision three inches in length was made along the outer border of the radius between the extension muscles of the thumb down to the bone. The periosteum was readily lifted from the callus. This was spongy and easily removed with saw and chisel, thereby clearly exposing the line of fracture. No evidence of impaction was found. Efforts at reduction failed until the bone was transversely divided with the chisel in the line of fracture. A reduction was then easily accomplished and the fragments retained in place. The wound was closed except for a small gauze drainage to care for the rather copious oozing. The arm was suspended during the first twenty-four hours after the operation.

The subsequent history was uneventful. After three weeks all dressings were dispensed with, and passive motion instituted. A supra-articular line of tenderness could be discovered, but there was no deformity. When the patient left the hospital, six weeks after operation, wrist movement was somewhat limited in dorsal flexion, and there was slight limitation of extension movements at the terminal digital phalanges. For all ordinary purposes the range and strength of motion of the fingers in flexion were normal.

Case IV.—R. S., aged sixteen years, admitted to the Good Samaritan Hospital July 6, 1893. Four weeks ago from a fall patient sustained a fracture of the right radius. Efforts were made in the country, where

the accident occurred, to reduce the dislocation, but evidently without success. Splints had been used almost continuously since the accident. The arm presented the typical deformity of a Colles's fracture, with impairment of motion in the thumb, index, and middle fingers, due to binding down of the tendons within the tendon sheaths. Point pressure over the site of the fracture was exceedingly painful. Under anæsthesia an effort was made to reduce the dislocation, but without success. An incision was, therefore, made along the outer border of the radius, three inches in length, and the fracture thoroughly exposed. There was no attempt at union. The line of fracture was readily discerned, and an impaction easily recognized. It was only after the bone was divided in this line with the chisel that reduction could be effected, and the deformity readily removed. The entire wound was closed without drainage, and the recovery was an uneventful one. Passive movements were commenced two weeks after the operation. The patient was discharged from the hospital six weeks after the operation with practically normal function of the wrist and finger movement.

Case V.—R. F., aged nine years. Family history good; admitted to the Jewish Hospital December 26, 1895. On September 25th was run over by a bicycle and the right femur fractured a little below its middle. The fracture was very oblique, and shortening two and one-half inches. In the very beginning the case was treated by weight extension and lateral splints. Efforts at reduction made a week after the accident under anæsthesia failed to reduce the shortening. After six weeks the union was quite firm, with marked outward bowing. Shortening between two and one-half and three inches.

Operation, January 2, 1896. Incision five inches in length from the outer portion of the thigh over the site of fracture. Hæmatoma had entirely disappeared. The fracture was very oblique. The fragments which had passed each other were united by a bridge of new bone. With considerable difficulty this was severed with the chisel. The medullary cavity of the upper fragment was closed by callus, the lower was still open. The upper fragment was freshened by the saw. A Senn bone-ferule, largest size, was now introduced and the fragment brought into good position. Silkworm-gut drainage was resorted to, except for which the wound was tightly closed. A final recovery from the operation in this case was satisfactory in the extreme. Except during the first three days the temperature did not exceed 101°, after which it returned to the normal and continued so throughout the stay at the hospital. A fenestrated plaster-of-Paris dressing was applied immediately after the operation and retained in place six weeks. The patient left the hospital with the wound perfectly healed, on March 1, 1896. After he left the hospital some pressure necrosis from the ferule resulted. This was removed by Dr. E. W. Walker. The patient now, I understand, has a shortening of less than one inch, and walks with only a perceptible limp.

Case VI.—G. M., aged thirty-three years, admitted to the Cincinnati Hopital May 12, 1896. Patient was in the hospital a year ago for delirium tremens. On the day of admission was run over by a stone wagon, sustaining fracture of the leg.

Physical examination reveals a fracture of both bones of the right leg midway between ankle and knee-joint. At the site of fracture there is a well-marked angle with outward opening. The foot itself is inverted,

toes pointing toward arch of opposite foot. Very considerable hæmatoma at the site of fracture.

Under anæsthesia efforts at reduction were made. It is evident that a loose fragment intervened at the site of fracture, preventing reduction. Dr. Evans assisted.

Under A. C. E. anæsthesia, an incision three inches in length was made over the site of the fracture, from which a large quantity of blood exuded. When the fracture was thoroughly exposed a spiculum of bone one-third of an inch wide and over an inch in length was found wedged between the main fragments, which could not be brought into apposition until the intervening spiculum was removed. Reduction was then easily accomplished. The entire wound was tightly closed in the hope that primary union would result. This was evidently a mistake, for suppuration ensued within a week, necessitating the removal of the stitches. Some necrosis of the bone resulted, so that on July 18th a secondary operation with bone sutures had to be made.

The patient was finally discharged with a sound leg, walking without cane and with less than one inch shortening.

CASE VII.—A. P., aged thirty-eight years, admitted to the Cincinnati Hospital December 22, 1896.

Present history. On date of admission patient received a gunshot wound of the forehead and of the left arm. When admitted she had recovered from shock. There was considerable hemorrhage from wound in the forehead, and she was unable to use the left arm. The wound of the forehead was a scalp wound and of no significance. On the outer side of the left arm about two inches below the acromion process was found the wound of entrance, probably made by a 38-calibre ball. Crepitus is felt if the arm is moved, and the head does not rotate with the shaft. An aseptic dressing was applied and external splints over extension. Both wounds in the scalp and in the arm healed by first intention.

January 16th. No evidence of union in the fractured humerus. A radiograph taken shows an oblique fracture about four inches below the shoulder-joint, with the lower fragment passing upward along the outer surface of the upper. The bullet is seen flattened against the inner side of the upper fragment, having evidently passed through the humerus.

18th. Under chloroform anæsthesia an incision three inches long was made along the outer surface of the arm, by which the fracture was exposed. Between the fractured surfaces an unorganized blood-clot adherent to shreds of periosteum was found and readily removed with curette. The bullet was removed. When extension was applied the fragments were easily brought into apposition and retained by a wire suture. The wound was entirely closed by deep and superficial sutures.

The subsequent history showed an infection, which was limited to the soft parts and was readily relieved by removing a few of the sutures. The patient was discharged on March 3d. The bones had united by a large mass of callus; arm function practically normal.

REMARKS. Though the cases reported are few they are of sufficient diversity in regard to regional distribution and time of interference to warrant some general conclusions.

In two of the cases interference was immediate, and in two osseous union had occurred. In one of the cases of immediate operation sup-

puration resulted, whereas in the other complete primary union took place. In only two of the cases in which operative interference was delayed did suppuration result. The inference may possibly be drawn herefrom that early interference predisposes to infection. This can readily be explained by the lowered vitality of the contused tissues and their notably reduced resistance to infective processes. This inference is strengthened by reports from many surgeons who have resorted to direct mechanical appliances for fixation of fragments in compound fractures or for the cure of pseudarthroses. I would only refer to the cases in which Senn used the bone ferule and Bircher the ivory plug. Nevertheless, since in all of these cases, by the interference plus the infection, the end result was better than it would probably have been without operation, the patients were brought only into the condition of one who had primarily sustained a compound fracture.

The lesson is plain, however, that extraordinary precautions toward securing asepsis must be taken before the simple is deliberately converted into a compound fracture.

Of fractures through the epiphysis two cases are recorded, one of the lower end of the radius, the other of the femur. Both of these cases were operated upon before callus had been thrown out.

In two cases operation was delayed until quite firm union had been effected. The operations were, therefore, for vicious union. Although nature does much to cover the inequalities left from the fracture, in neither of these cases would a good result have been obtained without operation. The question is, therefore, pertinent, if when deformity is certain to follow fracture it is not better to wait until union has taken place. Aside from the doubtless greater danger from infection in immediate operations, no strong argument can be advanced in favor of delay. Particularly is this true in epiphyseal separations. In those of the lower end of the femur the danger to limb and even to life from compression of the vessels is very great. An early interference can only be of advantage whereby the production of deforming callus will be forestalled. The technical difficulties of operation before callus has formed are very much less than those which attend the operative corrections of vicious union after fracture. Such fixation of epiphyseal separation need not necessarily imply an open wound, since by means of long pins driven through the skin, Helferich has recently succeeded in fixing the humeral epiphysis. The same procedure was employed several years before by Lange, and the principle is that advocated by Senn in fractures about the hip. It is very possible that by means of such a drill and with skiagraphic tracing of the fracture, say of the elbow or of the ankle, before him, an operator can transfix fragments without open incision and retain them in position by means of the drill.

There are certain classes of cases in which open treatment should be

strictly ruled out, even if the deformity is great. In cases of crushed fracture, where extensive comminution can be made out, nothing could be gained from operative interference. Altogether, therefore, the cases in which the open treatment should be resorted to would be few and far between. Nor does the experience of the writer, or what he has gleaned from literature, warrant him in coming to conclusions that are final. Nevertheless, he believes that it would be justifiable to submit in a tentative way the following postulates:

1. The conversion of a simple fracture is justifiable when other means to secure the best end results fail.

2. In fractures of the diaphysis of the tibia, femur, humerus, and clavicle in which insurmountable longitudinal displacement or axial rotation has taken place, immediate operation or mediate operation before definite union has occurred is indicated.

3. In epiphyseal separations, when reduction cannot be otherwise effected, an early operation is justified.

4. Fractures complicated with dislocations irreducible by other methods warrant operative interference.

5. The involvement of a joint, except probably in the case of knee and hip, do not, *per se*, militate against operation if this is otherwise indicated.

6. If extensive comminution is present, as in compression or crushed fracture, operation is contraindicated.

7. Special precautions against infection must be taken, in connection with which should be borne in mind the dangers of too firmly closing a wound and the advantage of temporary tamponade and secondary suture.

8. Reckless and indiscriminate resort to the operative relief of deformity in recent simple fractures is to be condemned, since there would be few fields of surgery, in the event of an unsuccessful intervention, in which the contrast could be greater between the good intended and the harm done.

ON THE VALUE OF ATHLETIC EXERCISE AS A COUNTER-AGENT TO THE SEDENTARY PURSUITS OF URBAN POPULATIONS.[1]

By Sir Dyce Duckworth, M.D., LL.D.,

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We often hear that a healthy mind can only be found in a healthy body. This is a great fact. We too often meet with instances which illustrate the converse of this, and have no lack of opportunity of wit-

[1] An address delivered before the Birmingham Athletic Institute.

nessing the mental distempers begotten of ill-developed and sickly bodies —to wit, the ill-temper and irritability, the "fads" and crazes, the conceits and narrowness, the failure, and unhappiness that are apt to arise where mental energy is unchastened by robust corporeal activity. Nor are we unfamiliar with the reverse of this picture, since we all know what a monster may be evolved from unfettered and unlettered muscularity, in the shape of that brutal specimen of humanity, the prize-fighter, or that less disgusting, but not too useful, person, the man, or it may even be *woman*, whose whole aim in life is to display muscular force and agility. I have depicted extreme cases. We can find a mean; and a more desirable conjunction of mental and bodily wholesomeness, and the song of the "harmonious blacksmith," with its pathos and its lofty moral tone, will not fail to commend to us the subject of it. And yet, again, for beauty of soul and character, combined with true English muscularity, I may simply mention the name of Charles Kingsley to illustrate what I mean.

The problem before us is to discover, if we can, how best to secure wholesome minds together with healthy bodies for dwellers in towns. The title of my paper appears to presuppose that town-life is in some way unfavorable, and that it requires correction. I affirm, forthwith, that this is the case; but I proceed to maintain that this is not necessarily a fixed law. Can we affirm the contrary, and declare that rural life secures the highest and best level of bodily or mental health? I am not at all prepared to accept this view without some reservations. No doubt the Irishman's opinion on this matter best settles the question. He said "*both* were best," the ill effects of the one to be counteracted by the benefits of the other. But this solution of the difficulty is, perhaps, hardly more within the reach of practical attainment than is his scheme for his own "home rule." If bodily work, good food, and good homes were attainable in rural life, together with sufficient mental occupation, that would doubtless be the ideal life for a large number of our countrymen, and they would cease to crowd unwholesomely into towns. I for one hope to see the day when the cultivation of the soil will again prove sufficiently attractive to keep country-born men in the country. In the mean time, town-life, as too commonly led, though less than formerly, uses up and destroys so much humanity that large drafts are called for from the country to make good the deficit and to carry on our manufactures. With amended conditions of urban life, we may hope to grow such an urban stock as may supply sufficiently what is needed. Of late years the schoolmaster has been quickening the rural intellect and inspiring it with ambition to lead a more intense life; for its owner to wear the black coat and high hat, and to be rather ashamed of short sleeves and bare arms, as if a three-legged stool, a steel pen, and a home in a long row of unlovely little houses were the

greatest desiderata of existence. Thus the schoolmaster and the cheap newspaper, together with agricultural depression, have between them caused an exodus from broad acres into our towns. Hence, more struggle and less wholesome environment, devitalization from concentration, and the presence of many knotty civic and political problems.

Where is urban muscularity amidst all this? Is it anywhere save in the arms of the mechanic where alone there is anything to be done with it?

I sometimes think that we in the towns may yet see the day when we shall produce, and supply, men trained and skilled to find a place in the country for their energies, when we shall return the drafts of aimless wanderers who come to us, seeking work and finding little or none awaiting them, to till the soil and draw from it its natural wealth ready for home markets.

We shall certainly not always be able to depend so much upon the foreigner as we now do for our supplies. We might give some technical education in the cities that would fit these men to cope more intelligently with agricultural problems than is now possible, for brains are required nowadays as well as strong arms in all departments of human activity.

My subject, as you see, appears to trench on politics. Far be it from me to touch such a sensitive plant within the limits of this great town. We physicians are not, and ought seldom, if ever, to be politicians. But we ought to be statesmen. I am commonly supposed to be a very inflexible Tory myself. But I regret to say that I entertain a very low estimate of politicians of all sides. I have little faith in any of them. The bent of my mind, as of all physicians, is to try and find out what is wrong, and to do the best at all costs to set it right. That is not commonly the bent of the purely political mind, and certainly not in fact is it the practice of any political party when in power. The medical mind knows of no compromises and of no half measures. Our remedies are designed to produce just the results and effects we wish, and we do not care, and we do not ask, whether the patient likes our methods or our physic. Our business is to get him well, and to do him real good, and we have no personal aims and no fear of any of our constituents.

None know better than we do how the influence and special environments of town life tend to impair the forces of both body and mind. These influences come into action from the first hours of life. We call them unwholesome and devitalizing, and it is not hard to tell why this is the case. They attack the body from many sides. We find, first, that the common air is so far tainted and charged with impurities, so devoid of some of its essential qualities, that it is inadequate for the purposes of promoting sound nutrition.

The atmosphere of our large towns is deficent in oxygen and laden with the products of a concentrated population of men and animals. It

is further charged with gases of imperfect combustion, arising from a vast consumption of fuel and of coal-gas, and it is also full of dust and soot. This is bad enough in well-appointed houses, with ample cubic space for respiratory purposes, but it is worse in small and ill-contrived dwellings. Crowding of houses and of population entail concentration of all these malign aërial influences. In the next place, there follows from this, in an atmosphere so moisture-laden as that of our island, an almost perpetual dust and soot-canopy overhanging our towns, which shuts out a great part of the little direct sunlight we are favored with in this latitude. What with positive additions of unwholesome elements to our air, and deprivation of oxygen and stimulating light, an urban population is seriously hampered in securing some of the best things worth having in this world. The result of this, if it were unmitigated, would be to produce both devitalization and mental and bodily depression, evidenced by stunted growth, pale faces, shrunken limbs, and such frailty as lays the population open to inroads of many degenerating ailments. While the body is growing there is especial need for fresh air and wholesome environments. When growth is complete, and a good constitution is established, there is far more resisting power and ability to bear the harmful influences of town-residence. These facts are now well established and form part of common knowledge, and, by degrees, efforts have been made, in the last forty years more especially, to counteract the malign influences I have referred to.

I know well that authorities in this town are well in the van of those who have been active in demolishing "rookeries" and securing air-spaces for the people, and they are now reaping the benefits of this wise procedure on the part of one of the most enlightened municipalities in the kingdom. If I am not mistaken, there is still a good deal more to do and to accomplish before the atmosphere rivals that of Pittsburg, now so improved, the Birmingham of the United States, which, when I knew it, twenty years ago, was something never to be forgotten. A few more coal-strikes, and we shall learn to be much less dependent on crude fuel of that description, "stinking coals," as Ruskin calls them, and have to turn our colliers out of the bowels of the earth to plow its surface in the face of heaven.

To return, however, to consider other malign influences of town-life. One very difficult matter for citizens is to secure sufficient bodily exercise. If we are engaged in business, we must needs dwell near our work. In early life there is a natural craving in healthy persons for exercise in the open air, and when business pursuits are followed with the freedom from worry and anxiety which seldom attaches to 'prentice hands, the mornings and evenings of summer and the modern half-holiday are fully availed of. Hence, the cricket and foot-ball fields are in request by all wholesome young Britons.

The cyclists, too, so improperly called by Mr. Edmund Yates "cads on casters," nowadays are not disposed to lose their opportunities for trundling along our roads in all directions. All this is excellent.

One great advantage of active exercise and of athletics in general is that no one can be excellent or proficient in them who is not always perfectly temperate in the use of strong drinks. You cannot imagine a cyclist given over to drink, or a vigorous foot-ball player or a marksman amongst volunteers who did not know how to control himself in the presence of the tankard or the bottle. Hence we hail all athletic pursuits as correctives of our terrible national proclivity to take too much strong liquor.

As middle-life is approached and business becomes more serious, marriage being accomplished and olive branches having shot out, men tend to sit closer to their work, and gradually give up their exercise. They say they have no time for it, and they gradually lose zest for what is so needful, so imperatively needful, if they are to maintain vigorous minds in vigorous bodies.

I allow that there is instinctively a growing disinclination for the activities that were formerly attractive and pleasant in earlier life, and a tendency to grow stout, perhaps corpulent, especially below the belt, at the time of life I allude to. But it is not to be accepted or encouraged. I appeal now to the wives and sisters of such men as I describe, and must ask them to urge their better halves or their brothers to take sufficient active exercise, and to have a pride in their figures, and I must ask these men to feel humiliated and sorry when their tailors offer them congratulations on their increasing dimensions and the necessary draft on broadcloth. For this is regrettable, truly a sign of degeneration, and not, in most instances, indicative of vigor of body. Never lose your "frock-coat figure," once said a witty Irishman.

Those of you interested in athletics may very readily recognize a townsman by grasping the upper part of his arm. You will find it commonly thin and soft as compared with his forearm or with the muscles of his thighs and his calves. This shows that the legs of a townsman are in better condition than his arms, also, that the use of his hands entails a better state of the muscles of his forearms, while his flabby upper arms indicate that he has little occasion to exercise them.

If the upper arms remain idle there will be small play of the chest, insufficient expansion of it, and therewith a tendency to various forms of weakness. Such a man could do little to defend himself in a tussle, to swim efficiently, or hold his own in emergencies, such as escaping from a house on fire or from a shipwreck. Very simple exercise will soon remedy this failure, and place our townsmen at an advantage, with direct benefit to general health. Every Englishman is supposed to know how to use his fists on occasion, and, as a witty American has

said, "He always carries them with him;" but if he cannot hit out well from his shoulder, he will be a poor match for a garroter or other wary assailant. The use of clubs, dumb-bells, single stick, and the excellent practice of boxing will supply the necessary development; while cricketing and rowing furnish the best correctives in summer time.

The object to strive after is to be sufficiently trained *all over* as to the muscles of the body, and no extraordinary efforts are needed to secure this much.

One harmful custom, now so prevalent, must be noticed. I allude to the too great use now made of omnibuses and tramcars by townspeople.

I am sorry for any shareholder in such concerns, but I wish to say that nowadays many persons drive who would be far better if they gave themselves time to walk to and from their places of business, and made the effort to do it. I take it that an average citizen needs daily not less than six or seven miles of walking exercise, or its equivalent in other muscular effort. The jostle and haste connected with short railway journeys are also inadvisable, and much harm undoubtedly comes from the rush to catch trains after a hurried breakfast. You do not suffer here, I imagine, from underground railways in which an abominable atmosphere has to be breathed. We know too much of their evils in London, and those who are wise take care to use them as little as possible.

The fact is that townspeople need all the fresh air and muscular exercise they can possibly get. This occupies time, and as time is said to be money, exercise and air are treated as unproductive and unnecessary; albeit you may rest assured that your money may cost you too dear if you neglect your body and the inexorable demands of nature. I am speaking of the laws that apply to the majority of people, for one meets with individuals who appear to thrive fairly well without much air and exercise.

Women can better than men resist the necessity for these. I generally use this argument, however, to enforce the good old doctrine that women are intended to be "keepers at home," while men "go forth to their work."

I will next remark that often in the case of sedentary lives where plenty of brain-work is carried on, there may be an excellent appetite. The muscles may be but little used, but a well-worked brain demands plenty of food, and all appears to go on well. But very often under these conditions we meet with irritable brains, peevish tempers, and an unsatisfied mind, and the case lies in relieving the brain by way of muscular energy. In this way, as a rule, do we most often meet with the healthy mind in the healthy body.

There are many claims on a citizen's brain which do not affect a countryman's. The life of a great town is intense, and every sense is exercised and quickened, the wits are sharpened, and the weakly go to

the wall. New-comers from the country are sometimes little adapted to the new environments awaiting them in towns, and not seldom make shipwreck amidst them, both of their bodies and their souls. They may inherit capacity for such a measure of muscularity as their newly-sought pursuits can never supply; they must work with their brains instead, and unless good influences are soon brought to bear on them, they may very rapidly begin a downhill course. For such persons an institute such as this may well prove a vast boon, encouraging them to muscular accomplishments which they are well fitted to excel in, and to find wholesome-minded friends. I am no believer in universal or free education to furnish the highest guide to morals. I am old-fashioned enough, though not an old man, to believe in the good old God-fearing, even if not very dogmatic, teaching as the best guide to conduct, and I find much room nowadays for the inculcation of the wisdom of Solomon. I have no belief whatever in any melancholy puritanical environments or restraints for the active and happy lives of young people, for I have had a terrible, and no small, experience of them. I believe in robust training for body and for soul, for both, and not for one without the other. And I will boldly affirm that to supply sound physical, and that is mainly muscular, training to any young man or woman is to do a good half of the work that the most devout and saintly person could wish to see accomplished for their highest interests, both here and hereafter. I say this because I know that no excellence or regular practice in athletics is possible together with intemperance or uncleanness, and because I know that gross appetites and carnality only grow in unexercised and ease-loving bodies. Swine can well become fat with full troughs in a foul stye.

There is a great sense of satisfaction enjoyed by persons in a condition of training, and even a moderate degree of this special muscular fitness is worth securing. Here, according to the late Dr. Parkes, are some of the happy results: "A clear skin, a bright eye, a cheerful temper, easy and rapid movements of the body, improved breathing power, firm muscles which resist bruising, and increased recuperative power after injuries." It needs small knowledge of an urban population to satisfy one that much yet remains to be done to reach a measure of healthiness approaching this, but I venture to promise to the majority of those who properly avail themseves of the advantages of this institute many of the good things just enumerated. They will hardly fail to make themselves better men, better Englishmen, and so surpass the average citizen of other countries. Not that muscular prowess is to generate undue pride or self-conceit, for strong men, knowing their powers, should be, and commonly are, both gentle and modest in their demeanor, and above all men are, and should be, the most chivalrous in the defence of the weak and of the gentler sex, the most unselfish and self-sacrificing.

I may next try to point out how, as citizens, you may avail yourselves of this athletic institute in this town. I have already stated that men over forty years of age become gradually disinclined for any but moderate exercise of their muscles. It has been said on good authority that no one after this age should run to catch a train, lest he should dangerously strain his heart. I much fear such risks are ventured upon every day. But such a warning by no means implies that exercise should be materially curtailed. Only violent forms of it should not be practised. The natural disinclination should not be quite disregarded, but athletic feats must not be expected or encouraged after forty years of age in the average man.

If a professional athlete is capable of these, it is because he is in constant training, and must needs lead a careful, wholesome life. He can follow no sedentary pursuits entailing confinement in close rooms for many hours. There is a natural tendency to stiffness and a loss of resiliency in the textures which renders it hard to compete with younger men when middle-life is passed. Albeit, there may be remarkable agility and great muscular power at this period in healthy men who have followed some athletic pursuit in early life. The danger attaches to the practice of athletics for the first time in middle-life without previous training in earlier years. Such men should begin very gradually, and for short periods. Light clubs and gentle exercises which expand the chest are best at this period. No heavy work, such as lifting weights, or exercise entailing sudden spurts of energy are advisable. Ordinary drill with precise and smart movements will well correct the stooping gait and slovenly slouch of many citizens, setting back the shoulders, and giving an uprightness of carriage much to be desired. Our citizen volunteer army bears efficient witness to the benefits derived from this. For graceful carriage and poise of the body I know of no exercise better fitted than that of fencing, one too much neglected by Englishmen, and the earlier it is begun the better. The perfection of military drill is that of the lance-exercise, which secures the finest and most accurate agility. All exercises tending to expand the chest are of great value, and must be allowed to give to those who follow them many chances in warding off diseases of the lungs.

If only a moderate amount of athleticism is permissible, though very advantageous to men in middle-life, it is certain that younger townsmen may by degrees attain to the highest excellence and developments in it. Hence I may very strongly urge younger men to carry on here every form of muscular activity, for they will thus be equipped to carry on such exercise far into their future lives without the risks attendant in the case of older persons.

Another point I would lay stress upon, and it is this, that all such exercises should be regular, and not carried out by fits and starts.

Those who enter here should arrange the time-table of their lives so as to secure leisure for the work they purpose to do.

For the average entrant here, I would further state that I look with disfavor on all attempts to do very extraordinary feats. The word *athlete* signifies one who contends for excellence or for a prize. We must use the word with some special reservation as applied to city men in general. These are times in which every one strives to "break the record," as the expression goes, to jump further or higher, to lift heavier weight, to cover the ground in less time than has ever been done before. All this may and can be done; but not by the average man; and remember most of us are average men, and are not designed for extraordinary performances in perhaps any walk of life. Such attempts can only injure the average man, and do him more harm than good. They are ill-adapted for dwellers in towns who have their bread to win at the desk, in the shop, or in the factory. When I give this warning I by no means wish to discourage the man blessed with extraordinary muscular endowments; but he is exceptional, be it remembered, and the aims of average citizens had better be rather less ambitious. I doubt not you could give me an array of examples which controvert my teaching, and would say I think too poorly of the potentiality of the average citizen. But I am not speaking without full knowledge of what is best in the long run for such a person, with his peculiar mode of life and environments. Young men at the universities who are well fed and live in pure air may well be subjected to higher tests and strain than city men who follow sedentary pursuits. It is not in accordance with my experience that boys or young men should be coddled in town or country. I believe in the value of active muscularity for all not positively delicate or disabled by actual infirmities, and know well how the general standard of health may thus be raised for the majority of average youths by enforced efforts in this direction. I do not fear the frequent occurrence of the recent lamented result in the case of the somewhat notorious "Rugby run." You will never make an omelette if you are afraid of breaking your eggs. I feel sure, however, that all who enter upon a course of athletic exercises will do well to be medically certified as fit in all respects to perform them and profit by them, and I would add that prolonged runs demand especial fitness, and are only to be practised by men under five-and-thirty years of age.

We hear much of regulating hours of work for people in these days. I am not afraid of work. I believe in plenty of it for the best health of mind and body. It is worry that kills people. It is idleness that rots body, soul, and mind. It may be well to regulate the hours of work done under unwholesome conditions, as in mines and ill-ventilated workshops; and this reminds me that many shops and offices and chambers are occupied, even in these days, with scant attention to proper

ventilation by people who should know better. Little, if any, harm will come to those who pursue sedentary business in well-aired places, provided sufficient regular exercise be taken. I have no fear for the average outdoor laborer overworking himself. I often watch him at work, and envy his lot, cast all day in the open air. I watch him leaving his work just when I am getting very busy, and envy him his leisure. I envy him his half-holidays, too, which I cannot get, and I have watched him spending them too often wasting his wages on himself, and converting himself into a besotted and defaced image of a man, stumbling home to sleep off his orgies well into the next Sunday afternoon. We doctors know these things, and the really industrious man has no better friends than among us. We shall tell him the truth, however, and not fill his head with nonsense, flattery, and discontent, but urge him to avoid scamping work, and to share his earnings soberly and righteously with his wife and family.

I feel very sure that until the laboring man has learned to spend a sober and domestic, or profitable, half-holiday, he had far better be without it, and doing something useful. Your athletic institute, however, is not for them. Their muscles are sufficiently exercised, and we would urge them to cultivate their minds by visits to museums, picture galleries, and well-ordered reading-rooms, to social clubs where the professional agitator cannot enter, and where beer and tobacco may be used and in no degree abused.

But I fear I am wandering into paths where I have no right to stray. My thoughts were centred on urban life, with its hard problems, its snares and pitfalls, and I bethink me now of a passage in one of the sermons of that great prophet of modern times, Charles Kingsley, who delivered himself twenty-two years ago of the following burning words, which I will read to you:

"I can conceive a time," said he, "when by improved chemical science every foul vapor which now escapes from the chimney of a manufactory, polluting the air, destroying the vegetation, shall be seized, utilized, converted into some profitable substance, till the black country shall be black no longer, the streams once more crystal clear, the trees once more luxuriant, and the desert, which man has created in his haste and greed, shall in literal fact once more blossom as the rose. And just so can I conceive a time when by a higher civilization, formed on political economy more truly scientific, because more truly according to the will of God, our human refuse shall be utilized like our material refuse; when man, as man, down to the weakest and most ignorant, shall be found (as he really is) so valuable that it will be worth while to preserve his health, to develop his capabilities, to save him alive, body, intellect, and character, at any cost; because men will see that a man is, after all, the most precious and useful thing on the earth, and that no cost spent on the development of human beings can possibly be thrown away."

I would fain let these be the last words I uttered before you to-night, but I must not conclude without first offering you my hearty congratulations on the most excellent means you have instituted in this building for combating the ill-effects of sedentary and town lives. Here, at least, is an unalloyed source of good and benefit. Who can declaim against this institution? Who dares to decry your efforts? When the local historian comes to describe the deeds of those who have worked with a public spirit for the best requirements of the people of Birmingham during the last quarter of this century, my belief is that he will not fail to mark the very important part played in that great work by the wisdom and shrewd good sense of those who devised and perfected the athletic institution in this town.

NERVOUS DEAFNESS IN DIPHTHERIA.[1]

By J. C. Wilson, M.D.,

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I REPORT the following case at some length, first, because sudden bilateral total deafness in diphtheria is exceedingly rare; secondly, because of the importance of this complication; thirdly, as illustrating the rapid disappearence of a tonsillar false membrane after the administration of an efficient dose of diphtheria antitoxin serum; and, finally, because it illustrates some phases of uncertainty in regard to the diagnosis of membranous sore-throat.

Follicular tonsillitis in an adult; moderate fever, occipital headache, tinnitus aurium et cerebri; fourth day, dense pellicular exudate upon tonsils, conjunctivitis, increasing tinnitus and deafness; injection of diphtheritic antitoxin serum; a few hours later, total deafness, with slight vertigo, great chemosis of the conjunctivæ; gradual defervescence, completed by the fifteenth day, at which date there was partial paralysis of accommodation, together with paresis of extensor muscles of the head, persistent tinnitus, slight vertigo, and absolute persistent loss of hearing.—A married woman, thirty-three years of age; the mother of three children, the youngest being about seven years old; a private patient; was first seen in present illness November 12, 1896. She complained of sore-throat, which had begun the previous evening. Upon inspection there was observed general redness of the velum, half arches, and tonsils, with swelling of the last more marked upon the right side. Upon the right tonsil there were eight or ten small, discrete, grayish-white patches about 2 mm. in diameter. The exudate composing these patches was with some little difficulty detachable from the surface of the tonsil, and evidently occupied the openings of certain of the crypts. The other tonsil was free from exudate. The patient complained of pain on swal-

[1] Read before the Association of American Physicians at Washington, D. C., May 5, 1897.

lowing and headache, most intense in the occipital region. The temperature was 103° F. The treatment consisted in the administration of $\frac{1}{15}$ of a grain of calomel, 1 grain of Dover's powder, and 2 grains of caroid every hour, together with the use of a gargle consisting of equal parts of a 15-volume solution of hydrogen dioxide and cinnamon water, and the local application of hydrogen dioxide solution, full strength, once a day, by means of a cotton carrier. On the following day the condition of the throat was much the same, save that the grayish-white patches had entirely disappeared from the right tonsil, while similar patches had shown themselves upon the left tonsil.

Nov. 14*th.* Throat less painful; swallowing less difficult; headache has disappeared. Temperature, A.M., 100.4° F.; P.M., 100°. Treatment continued, the powders being administered at intervals of three hours. Hearing impaired; the patient complains of distressing tinnitus, referred to both ears and to the head generally. On inspection of the throat there is seen a slight uniform, grayish film, about 1 cm. in diameter, upon the lower portion of the right tonsil.

15*th*, 8 A.M. The patient had passed a restless night, suffering from constant and distressing roaring in the head and ears. The temperature had fallen to 97° F. There was marked and painful conjunctivitis, the vessels being deeply injected. The greater portion of the right tonsil was covered with a dense, grayish-white exudate, the borders of which were abruptly marginate, surrounded by a deeply hyperæmic zone. A similar though less extensive exudate had formed upon the left tonsil. Restlessness, constant nausea, occasional vomiting. The patient complains of pain in the eyes; rapidly increasing deafness and distressing sounds in the head, like bands of music, fire-engines, etc.

At 10 A.M. the temperature had risen to normal. Diphtheria antitoxin serum (Behring), 1500 antitoxin units, was injected into the right interscapular space. Treatment: small doses of calomel, alternating with tincture of the chloride of iron and a laxative enema; alcohol in the form of milk-punch and champagne. As an hypnotic, chloral in 15-grain doses at night. For the eyes, a weak alkaline lotion. Locally, hydrogen dioxide solution applied with a cotton carrier, full strength, every hour. At this time a culture was made and forwarded to the bacteriological department, and notification of the case as one of diphtheria sent to the Board of Health.

At 2 P.M. vomiting ceased and did not recur.

At 5 P.M. total loss of hearing. At this time great conjunctival chemosis, the œdematous conjunctival tissues rising prominently above the corneal margins and preventing the approximation of the edges of the eyelids. No pain in or about either ear, nor tenderness upon pressure. Temperature, P.M., 100.8° F. Urine: specific gravity, 1022; a trace of albumin; no casts.

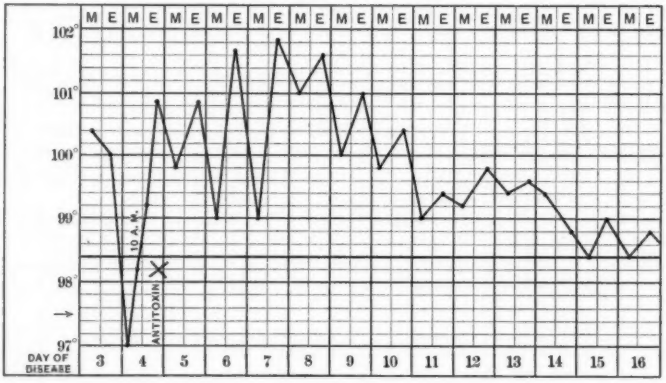
16*th.* Conjunctivitis more intense; condition otherwise the same. The inspector of the Board of Health placed upon the front door of the house the usual poster indicating the existence of a case of diphtheria within.

17*th.* Membrane in the throat has disappeared. The patient had a more comfortabe night and slept several hours. Upon examination the tympanic membranes are bright red, but glistening and not bulging. The report of the Board of Health received. The bacteriological investigation failed to show the presence of the Klebs-Löffler bacillus.

Some doubt as to bone-conduction, the patient being unable to discriminate positively between auditory sensations and the vibrations of the tuning-fork. Eyes treated by cold compresses.

18*th.* Bowels freely moved by enema. Large quantity of mucus in stool. Upon examination in a vessel of water sheets of pseudo-membrane and a tubular cast. The patient not known to have previously suffered from membranous colitis. Albumin has disapeared. The patient seen in consultation by Dr. S. MacCuen Smith, who visited her from time to time subsequently. Later she was also seen by Dr. Charles H. Burnett. Neither at this time nor at any subsequent period were there evidences of inflammation of the *middle ear*. From this time for a period of a week free sweating was induced every day by a hypodermic injection of pilocarpine. Upon notification of the negative report from the bacteriological laboratory, the Board of Health caused the yellow poster to be removed from the front door of the house.

19*th.* Loss of power in the muscles of the back of the neck. The head falls forward and rolls to either side. Tinnitus continues.



20*th.* Free movements of the bowels, with a large quantity of stringy mucus.

29*th.* During this period the chemosis has gradually subsided, and the eyes are now practically well. Patient thinks she can hear the street-cars and wagons, but upon careful testing it is evident that she perceives only the vibrations of heavy vehicles passing. Up to this time her power of modulating and otherwise regulating her voice has been very imperfect. Some gradual improvement in this respect noted.

Dec. 4*th.* The patient able to be out of bed for a few moments. Station only slightly impaired. Very moderate dizziness. Deep and superficial reflexes unimpaired. General nutrition improved. Tinnitus still constant and distressing. It is referred now chiefly to the ears. The membranous colitis treated by daily high enemata of silver nitrate 1 : 1000. The tincture of the chloride of iron discontinued, the compound syrup of the hypophosphites being given in its stead, together with arsenic in the form of Fowler's solution. The membranæ tympani present a normal appearance, the redness having entirely disappeared.

16*th*. At the suggestion of Dr. Burnett the method of Lermoyez was employed, with the view of determining whether or not the deafness was due to anæmia of the internal ear. This method consists in the administration, by inhalation, of amyl nitrite. Five mimims were poured upon a towel and held to the patient's mouth and nose. Intense flushing of the face immediately followed, the patient at the same time crying out, "Oh, my head!" and stating that the roaring, which had been confined to the ears, was now felt over the whole head with unusual violence. Her condition was most distressing, but passed off in the course of eight or ten minutes. The test was repeated a few days later with the same result.

It was noted upon the 20*th* that the noises in the head were much louder. They were described as being like the sound produced by the tearing of muslin, fire-engines, car-bells, and the like. The patient is now slowly acquiring the sign alphabet of the deaf and dumb. Communication with her is conducted by writing. She complains of difficulty in reading, and now suffers much from headache.

On the 28*th*, station was much more impaired than at any previous time, and there is distressing vertigo, with headache. This condition continued for three days and passed off after brisk purging. The indications of membranous colitis continue.

29*th*. Blood examination by Dr. F. A. Packard, who made the following report: 5,025,000 red blood-cells, 1 white to 301 red. Hæmoglobin 70 per cent. Differential staining shows no abnormality.

The patient occasionally complains of double vision.

February 24*th*. The condition of the patient has gradually improved. The double vision has disappeared, the difficulty in reading diminished. Annoying tinnitus continues, together with slight vertigo and disturbance of equilibrium. The muscles of the back of the neck continue to be paretic. Deafness remains absolute, both to ordinary sounds and the tuning-fork held in contact with the skull. The patient can now distinguish between auditory sensation, which she cannot hear, and the vibration of the tuning-fork, which she readily perceives.

Dr. de Schweinitz about this time examined the patient, finding no lesion in the eye-ground, except a slight œdema of the retina and paresis of the ciliary muscle amounting to a loss of about one-third of the accommodative power.

At this date the patient went to Florida, where she spent some weeks, improved in every respect, and in particular wholly recovering from the membranous colitis.

Total deafness, annoying tinnitus, slight vertigo, impairment of station, and paresis of the extensor muscles of the head persist at the present time (*May* 1*st*) The patient has only of late realized the nature of the misfortune that has befallen her in the loss of hearing, and has become apathetic and depressed.

The patient comes from a long-lived race on both sides. The father is living at the age of seventy-three years, but suffers from advanced interstitial nephritis. The mother is gouty and has gouty kidneys. There are two brothers and one sister in good health. One sister died of some acute septic process following confinement. The patient has never had syphilis; this subject has been very carefully investigated.

She is a perfectly well-balanced, reasonable woman, with a good nervous system, and has never shown the stigmata of hysteria. The possibility of hysterical deafness may be dismissed from consideration.

Notwithstanding the negative report from the bacteriological laboratory, it is assumed in the title of this communication and in the discussion of the case that the disease was diphtheria. That it was clinical diphtheria is beyond question. The nature of the throat lesion, the character of the exudate developing after local lesions presenting the phenomena of lacunar tonsillitis, the rapid disappearance of the pellicle, leaving superficial erosions, after the injection of antitoxin serum, the impairment of accommodation and the double vision, together with the loss of power in the muscles of the neck, fully justify the diagnosis. Whether the bacteriological diagnosis failed because of the local treatment prior to the making of the culture, or not, cannot be known. The negative report from the Board of Health permitted the removal of the yellow poster from the front door of the house, and no further attempts to establish a bacteriological diagnosis were deemed expedient, however interesting they might have been from a scientific point of view. Nothing would have been gained with reference to prophylaxis, seeing that the patient was placed in an apartment by herself, was attended constantly by a thoroughly trained nurse who held no communication with the rest of the household; that the children and junior members of the family were immediately sent away; that systematic disinfection was practised throughout the course of the attack, and that immediately upon the patient's recovery the rooms which she and her nurse had occupied were disinfected with the formaldehyde apparatus by the Board of Health. No case of disease traceable to this patient developed in any member of the household or any visitor.

Quite recently, at a time when it seemed to me desirable to place this case upon record, I communicated with Dr. Abbott, the medical officer in charge of the bacteriological laboratory, with a view of obtaining a fuller report, but learned that the slide upon which the report was based had been destroyed.

Sudden loss of hearing occurs after mumps, epidemic spinal meningitis, and during secondary syphilis. It indicates a lesion of the eighth nerve, either in the brain or in its peripheral distribution.

Buck[1] makes the statement that "if with the loss of the hearing there are associated the symptoms of dizziness, marked subjective noises, and a staggering gait, the diagnosis of an auditory nerve-lesion, probably labyrinthine, may be assumed with a good deal of confidence."

Hovell[2] states "that absolute deafness is pathognomonic of diseases of the labyrinth. It is very rarely met with, for there are few patients

[1] Manual of Diseases of the Ear. Second edition, 1895.
[2] Treatise on Diseases of the Ear, London, 1894.

who are utterly unable to perceive sonorous vibrations conducted through the bones of the head."

In point of fact, an examination of the literature, necessarily cursory, leads me to believe that sudden, total, permanent, bilateral deafness is extremely rare, and I have been able to find no case in which it has occurred in diphtheria. A friend who has been kind enough to look through the entire series of the *Annales des Maladies de l'Oreille, etc.*, covering a period of twenty years, has found no such case.

Gruber quotes Moos,[1] who reported:

"The conditions observed in the temporal bones of three children who died from simple diphtheria, and in which the middle ear exhibited merely catarrhal changes. They were similar to those found in the labyrinth by Steinbrugge in cases of epidemic cerebro-spinal meningitis. The membranous semicircular canals were in many places partially or entirely filled up by a substance consisting of coagulated lymph and a large number of cells with one or more nuclei. The mass exhibited concentric stratification and more or less advanced development in the direction of connective tissue, bone, and blood-vessels, and was here and there adherent to the periosteum. . . . The bloodvessels were obviously congested, with rupture and extravasation of blood, thus producing breaches of continuity in the courses of the auditory nerve."

Loss of the osseous substance and invasion of the cancelli of the petrous portion of the temporal bone by chains of micrococci were noted.

No evidence of osseous lesions has been seen in the case that I report.

With reference to the importance of total bilateral loss of hearing as a complication of any of the acute diseases little is to be said. The remote possibility of such an accident adds greatly to the gravity of any acute disease.

It is necessary to speak definitely with reference to the administration of the diphtheria antitoxin serum in this case. This was done within a few hours of the recognition of the conditions justifying a clinical diagnosis of diphtheria. No reaction at the point of injection occurred. The temperature, which had been very low and was rising at the time of the injection, continued to rise slightly for a few hours. It is probable that the antitoxin had no effect upon the temperature whatever. The following day the general injection of the throat was less marked, and within forty-eight hours the false membrane from both tonsils had wholly disappeared, leaving superficial erosions, which rapidly underwent cicatrization. It is important to observe that on November 14th, twenty-four hours prior to the administration of the antitoxin serum, it was noted that the hearing was already impaired, and that the

[1] Gruber: Text-book on Diseases of the Ear. Second Edition, English translation, 1893.

patient complained of distressing tinnitus, referred to both ears and the head generally.

The antitoxin serum exerted an obviously favorable influence upon the condition of the throat, but failed to arrest processes involving the labyrinth and the subconjunctival lymph-spaces that had already made some progress.

CHRONIC CONTRACTION OF THE PROSTATIC FIBRES ENCIRCLING THE VESICAL NECK AND ITS TREATMENT.[1]

By Eugene Fuller, M.D.,

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If one examines the writings of Civiale, Roux, Velpeau, Caudmont, and other contemporary French genito-urinary authors, he will find much space allotted to what is termed by some of them neuralgia of the vesical neck, by others contraction of the vesical neck. The words "nevralgie" and "contracture" used by these writers are expressive of like conditions. Keyes, in his book, commenting on the meaning of neuralgia in this connection, states: "The French expression 'nevralgie' does not necessarily include the idea of pain, but signifies simply a nervous disorder, functional, not organic." Contraction of the vesical neck is used much in the sense of spasm of the vesical neck, the only difference being that spasm is supposed to represent a momentary condition of tonicity of the muscular apparatus surrounding the deep urethra, while contraction is indicative of a tonicity somewhat more lasting. Slade, who studied under Caudmont (*Boston Medical and Surgical Journal*, July 5, 1855), in trying to explain the difference between these two expressions says: "Contraction is distinct from spasm, which is essentially temporary. Although the former may commence with spasm, and may also be complicated by it, contraction comes on slowly, and generally disappears in like manner."

Contraction in the French sense is entirely a functional condition. It is not permanent, and it is associated with no pathological change in connection with the vesical neck. These terms are little used at present, since it is now known that they do not represent true diseased conditions, but only reflex vesical symptoms which frequently attend various pathological states of the sexual apparatus, the rectum, the kidneys, etc.

The condition which I am now to describe as chronic contraction of the prostatic fibres encircling the vesical neck represents a pathological

[1] Read before the Section on Genito-urinary Surgery at the Congress of American Physicians and Surgeons, Washington, D. C., May 6, 1897.

change in the part, and is consequently totally different from anything mentioned in the French literature, reference to which has just been made. I am convinced, however, that this condition of chronic contraction bears a relationship to the functional one in that it represents a pathological state which may apparently result from functional contraction or spasm in cases where, owing to some settled disorder of the sexual apparatus, the rectum, the kidney, or other part, functional contraction of the vesical neck has existed as a prominent symptom for a long period. The lesion in these cases of chronic contraction can be compared with that in connection with the sterno-cleido-mastoid muscle in chronic torticollis. It is permanent, rigid, and unrelaxable even under profound anæsthesia. If a boutonniere perineal incision be made while a patient of this description is under an anæsthetic, and the forefinger of the surgeon passed through the opening made in the floor of the membranous urethra backward, in an attempt to enter the bladder, the finger-tip will find itself tightly engaged in a ring-like contraction in the deeper portion of the prostatic urethra, where under normal circumstances the canal should be wide, funnel-shaped, and elastic, merging itself into the vesical cavity in such a manner that it is impossible simply from the feel to determine just where the urethra ends and the bladder begins. A contraction of this nature, as I have said, is large enough in my experience to admit the tip of the forefinger, and consequently its calibre is so nearly that of the anterior urethra that its presence cannot be detected by means of a good-sized sound passed along the urethra. If the surgeon feels carefully with his finger-tip he will discover the urethra just in front of the circular contraction to be roomy and somewhat pouched. The mucous membrane of the entire portion of the deep urethra will ordinarily feel perfectly normal and free from any evidences of previous inflammation. If now an attempt be made to crowd the finger-tip through the contraction and into the bladder, it will be found either impossible or only possible as a result of tearing apart the circular bands. In case the circular bands cannot be ruptured they can be cut along the floor of the urethra, thus allowing the finger to slip into the bladder and to thoroughly explore the vesical neck. It will then be appreciated that there is no hypertrophy of the prostate, an absence of which should also have been suspected from a failure to find evidences of any enlargement from previous digital rectal exploration. After the contraction has been thoroughly ruptured or cut through, little evidence will be left to the feel to indicate the nature of the lesion which previously existed.

I have so far been unable to procure an histological examination of the unusual condition I have described, since all my patients suffering in this manner have recovered as the result of operation.

The clinical symptom prominent in cases of this nature, and in fact

it might be said the only true symptom dependent on the lesion itself, consists in an inability, either complete or partial, to void urine. This inability is of gradual development. It generally begins as a hesitancy in starting the stream, and then as the act of urination approaches completion there is a dribbling, due apparently to a lack of control over the vesical sphincter, together with a feeling that a want of power exists to completely empty the bladder. This complaint is at first intermittent in character, but after a time it becomes permanent. Next in order, the patient experiences temporary attacks of complete retention. For a number of hours he may be unable to urinate. Early attacks of this nature may pass off of themselves as a result of rest, sitting in hot water, etc., but after a time it will be found necessary to employ a catheter and to empty the bladder on one or several occasions before nature will reassert herself. Finally, all power to urinate naturally is lost, and permanent recourse to the catheter is necessary. If pain or other symptoms be present they are due either to the existence of some disorder of the sexual apparatus, kidney, etc., which has acted as the originator of the trouble at the vesical neck, or else to vesical infection, which has resulted from instrumentation or stagnation of urine consequent on the retention. This train of symptoms is of slow development, and three, four, or perhaps more years may intervene between the time when the first difficulty in connection with urination was noticed and retention occurs.

A diagnosis of this condition has to be made largely from the clinical history of the case, together with an exclusion of other causes for impediment to urination which present tangible evidences of their presence, the only positive evidence that chronic contraction exists being afforded by the feel represented to the finger-tip introduced through a perineal incision while the patient is under an anæsthetic. If, however, one studies the clinical history of his cases carefully and thoroughly eliminates the causes of retention which present tangible evidences, he can make himself fairly positive of the diagnosis before resort is had to operation, which serves the double purpose of settling the diagnosis and of correcting the disease. In a considerable majority of instances a clinical history of sexual disorders, associated with vesical irritability, will be found to have existed and for years to have been a cause for complaint. If in these cases an examination of the seminal vesicles be made by the educated finger introduced into the rectum, evidences of existing or past seminal vesiculitis will be discovered. Perhaps next in order a clinical history of chronic pyelitis or renal inflammation, such as might be caused by a calculus, associated with frequent and urgent urination due to reflex nervous action, will be found to have existed for years before vesical insufficiency has been finally established. I have never as yet seen a case where the previous history of rectal disease accompanied by

vesical spasm has been the forerunner of chronic contraction of the prostatic fibres encircling the vesical neck. I believe that instances of this description do exist. Generally, however, where rectal disease is supposed to account for persistent vesical spasm, the trouble is really in the seminal vesicles and not at all in the rectum. Vesical calculus and chronic cystitis might possibly act as causative agents by reason of the persistent tenesmus they occasion. I know of one instance where lasting and complete retention resulted from a chronic contraction in which the only assignable contributing cause for the prostatic lesion lay in a habit which the afflicted individual had accustomed himself to for years of holding his urine persistently for long intervals against the dictates of nature. Gradually his vesical sensibilities became blunted to a marked degree, and chronic retention established itself as a final result. A history of this case will be detailed further on.

After the aid derived from the clinical history the next step is to exclude other possible causes for retention. Organic stricture of the urethra should be demonstrated to be absent. Rectal exploration should fail to detect inflammatory enlargement of the prostate or extensive induration of the post-prostatic connective tissue. Senile prostatic hypertrophy should be excluded as far as it is possible to do so by the rectal feel and also by the age of the patient, since most instances of chronic contraction occur in persons between twenty-five and fifty years of age. Disease of the spinal cord should be eliminated. Vesical atony, of course, is present in the great majority of cases where obstructive retention has existed, so that dependence on a catheter has become necessary Atony of this description, however, always gradually disappears after the removal of the obstruction. Atony dependent on spinal paralysis persists as long as the paralysis exists. So vesical paralysis is significant and lasting only when it depends on disease of the spinal cord. An endoscopic examination of the urethra should be made to see that a papilloma does not exist. A cystoscopic view of the bladder should also be taken on general principles. After these eliminative examinations the question remains of deciding whether the condition which supposedly exists at the vesical neck is a muscular contraction capable of being relaxed if the exciting cause is removed, or whether it is a chronic contraction, such as I have described, which is incapable of relaxation. The case should accordingly be examined to see if a cause exists such as may occasion a reflex muscular spasm or contraction at the vesical neck. If such is found it should be removed or so modified that it no longer produces reflex spasm. Thus if seminal vesiculitis, pyelitis, rectal disease, or other condition capable of acting in like manner, is discovered, it should be treated.

If no cause can be found productive of spasm at the vesical neck, or if the symptoms of retention or difficulty in voiding urine persist after

such cause has been removed by treatment, then it is advisable for the surgeon to make a perineal boutonniere incision, and, by means of the evidence furnished to the finger-tip, to make positive the diagnosis which his preliminary study had made most probable.

The only treatment for chronic contraction of the prostatic fibres encircling the vesical neck which in my experience has shown any favorable results consists in thoroughly rupturing or in cutting through them. This can be accomplished by means of the finger or the knife, as the case may be, introduced through a perineal incision. Perineal vesical drainage should be practised after the operation. Treatment such as this at my hands has been followed by complete disappearance of all subjective symptoms.

From a considerable number of cases of this disease upon which I have operated I will detail the clinical histories of the four following by way of illustration:

CASE I., forty-two years of age; first seen by me in the spring of 1895. His complaint then was a difficulty in voiding his urine. On some occasions his stream would be of fair volume, but at the best it would always end with a dribble, accompanied with a sensation as if the bladder were not emptied. Oftentimes on feeling a desire to urinate he would find himself able to void little, if any, on first making the attempt; but after repeated trials and a delay of an hour or so micturition would finally be accomplished. His idea was that any violent effort, exposure to cold, or undue excitement, would be capable of causing a temporary inability to urinate. On most occasions at the end of micturition there was a burning sensation extending along the anterior urethra. When this sensation was intense it was at times associated with a dull pain in the suprapubic region as well in the perineum. On two or three occasions before being first seen by me his retention had been severe and lasting enough to require the use of a catheter. This use of the catheter had been followed by a cystitis on each occasion. His urine when he presented himself was free from pus and showed no evidences of renal disease. He was married and had one child about ten years of age. Had had gonorrhœa and syphilis, so he stated, before marriage. His urinary symptoms had been coming on for a number of years, and were gradually increasing in intensity. He spent fully one-third of the days each month in bed, as he felt the rest and warmth afforded by this treatment essential to stave off the attacks of retention. All through his early life he had been unduly amorous, and had indulged himself sexually to an excess. Latterly the sexual act had become very exhausting to him, and ejaculation had been followed by pain. For some years before the symptoms of urinary retention had developed there had been frequent and urgent urination. Previously to consulting me he had visited many surgeons. His treatment had been anterior injections, endoscopic applications, and sounds. These methods had, in his opinion, aggravated rather than improved his condition. I examined him most carefully. He had no spinal disease. He had some vesical atony. His kidneys were not misplaced or enlarged. Rectal examination showed the prostate to be apparently

normal. There were evidences of seminal vesiculitis of long standing in connection with both sacs. There was no stricture. The deep urethra, however, was excessively hyperæsthetic. My diagnosis lay between spasmodic muscular contraction of the vesical neck, dependent on the seminal vesiculitis, and a chronic contraction of the prostatic fibres encircling the vesical neck, with the seminal vesiculitis existing as a predisposing cause. In order to settle this final question of diagnosis I subjected the seminal vesicles to a course of stripping, in order so to improve the vesiculitis that the symptoms at the vesical neck would disappear, provided they were due to reflex muscular contraction. After this the patient improved much sexually, but still his symptoms of retention persisted. I then made my diagnosis, and advised perineal section. This diganosis and opinion, however, was actively opposed by other medical authorities, who considered the case one of neurasthenia. I felt that this opposition was natural and just, as all I could advance to back up my own opinion was my personal authority. I accordingly thought it best to allow the case to be treated as one of neurasthenia, and quietly to await developments. In the spring of 1896 I was notified that as the result of an attack of complete retention no urine had been passed for ten days without the aid of a catheter; that the bladder had become infected; that the temperature was then ranging about 104°, and that suppression was threatened. There was then no opposition to operation. I performed perineal section and found a marked chronic contraction of the vesical neck. This I thoroughly cut through, as it was too fibrous to tear. The bladder was then drained through a perineal tube. The patient made a perfect recovery, and now, a year after the operation, he can pass a full, even, and forcible stream.

Case II., twenty-seven years old; of good general physique; reported to me about one year ago, his complaint being repeated attacks of complete retention of urine. His stream for the last two years had at all times lacked force. He generally had some difficulty in starting it. The act also usually ended in a dribble. The calibre of the stream was often considerable. Drinking beer, exposure to cold, or any undue excitement would result in complete or threatened retention. Threatened retention might be averted by sitting in hot water. For complete retention on many occasions the use of a catheter had been necessary in order to obtain relief. He had had gonorrhœa eight years before. The rectal feel showed the prostate to be normal, but both seminal vesicles to be the seat of chronic inflammation, the origin of which was probably from the gonorrhœa. Ever since his gonorrhœa he had had some urinary urgency. He reported that his urine had been clear till the last six months. For his urinary urgency he had been treated for spasmodic stricture by means of large sounds, deep injections, and electrolysis. He had never received any apparent benefit, however, from such methods. About six months before seeing me, being seized with retention in a strange neighborhood, the urethra had been severely lacerated in an unskilful attempt at catheterization. This injury had been followed by fever and a persisting purulency of the urine. On examining his urethra I found a false passage on the floor of the membranous portion. In practising care in avoiding this false passage, however, a full-sized steel instrument entered the bladder, showing an absence of stricture. His urine showed no evidence of pyelitis. It was, however, foul and ammoniacal. It contained pus and bladder epithelium. He was

apparently on all occasions unable to wholly empty his bladder. From his history I judged that the vesical infection dated from the urethral traumatism which occurred six months previously. I performed perineal section, and then discovered the existence of a marked chronic contraction of the prostatic fibres encircling the vesical neck, a condition which I had strongly suspected. The contraction was so rigid that I had to cut it through on the floor. I also cut out the false passage and drained the bladder. The patient made a perfect recovery, and can now pass his urine normally.

Case III., forty-five years of age, when first seen by me was entirely dependent on a catheter, and had been so for nine months, during which time he had not voided any urine voluntarily. Was married, and had never had any venereal disease. He was a market gardener, and for years his custom had been to cart produce to market. During these trips it had been his habit to hold his urine, no matter how much urgency to urinate there might be, until he reached his home. He so accustomed himself to holding back his urine that finally he apparently experienced little desire to urinate until the bladder became very tense. Nine months before great over-distention had oocurred, and a catheter had to be employed. The bladder had never since shown any signs of recovering its function. For a month or so he had experienced little inconvenience from catheter life. The urethra was patulous and the bladder tolerant. He had never washed his bladder or cleansed his catheter. Consequently after a time the bladder had become foul and a phosphatic stone had formed, so that when he came to me he was in great vesical distress. Examination showed no stricture and no prostatic enlargement, but a vesical calculus, intense cystitis, and some renal tenderness, which suggested an ascending nephritis.

Litholapaxy in a case of this description was not advisable, as removing the calculus would only result in temporary relief. I accordingly performed perineal section, and discovered a marked chronic contraction of the prostatic fibres encircling the vesical neck to be the cause of the retention. These I thoroughly cut through. I then extensively dilated the vesical neck, removed the calculous deposit, and inserted a perineal drainage-tube, which was kept in place until all evidence of vesical infection had disappeared. The patient made a complete recovery.

Case IV., thirty-five years of age, thin and wasted, consulted me for the first time in October, 1896. His complaint then was that he was forced to urinate about every fifteen minutes by day and every hour by night. The act was accompanied by painful tenesmus, but very little was voided at a time, and this with apparent difficulty. Between the acts of urination there was considerable dribbling, so that his clothing was wet and offensive. His urine, although acid in reaction, was extremely foul-smelling and loaded with pus and albumin. It also contained a few red blood-corpuscles. He was so weak that it was with much difficulty that he came to my office. Ten years previously he had had gonorrhœa, during the course of which he stated that retention of urine had occurred. He went to a hospital in Warsaw, and for four weeks he had to be catheterized. Since that time, although he had never been perfectly comfortable as regards his urinary act, still he had been able to follow his vocation of tailoring till about eight months previously, when, as a result apparently of exposure, he was again seized with retention. Dating from this last retention he had been in constant

distress, suffering from the symptoms of urinary urgency which I have described. He had been treated by vesical lavage and by the passage along the urethra of large sounds, but the treatment he had had seemed to him to have aggravated rather than relieved his condition. Examination showed the prostate to the rectal feel to be normal. There was no disease of the seminal vesicles. There was no stricture; no vesical calculus. There was considerable vesical atony and an inabiity to expel the last four ounces of the vesical contents. If the bladder were emptied by means of the catheter, blood would appear in the last half ounce passed, due to vesical tenesmus in connection with an empty condition of the bladder. As the result of careful study, the steps of which it is not here necessary to detail, I diagnosed hydropyonephrosis in connection with the left kidney. The spasmodic condition of the bladder I held to be due to the condition of the kidney. I also thought that the long-standing spasmodic contraction at the vesical neck might have resulted in a permanent condition of chronic contraction. If the contraction at the vesical neck had not become chronic I argued that a removal of the diseased kidney would be followed by a complete cure of the vesical condition; but if, on the other hand, the contraction had become chronic and permanent, then I considered the patient would be wholly cured only by a perineal section and a division of the contraction done as a secondary operation. Accordingly, in October, 1896, at the Post-Graduate Hospital, I did the renal operation. I found the left kidney markedly involved by hydropyonephrosis. The corresponding ureter was also dilated to the calibre of the small intestine. I removed both the kidney and the ureter. The patient made a good recovery and left the hospital at the end of four weeks. All his symptoms of vesical tenesmus left him as a result of the renal operation. His vesical insufficiency, however, remained. It was with the greatest difficulty that he could void urine, the removal of the element of tenesmus apparently serving to make the bladder seem weaker than before. In January last I had him re-enter the hospital. I then performed a perineal section and discovered a very marked chronic contraction of the prostatic fibres encircling the vesical neck, which I cut through on the floor. A large perineal tube was inserted and kept in place for ten days. The patient recovered. His urine is now clear and normal. He can empty his bladder completely, and his acts of urination are normal and perfect.

I have not been able to find any literature which apparently covers the ground of this paper. Belfield, however, may have had in mind a condition somewhat similar to the one I have described, although such does not seem probable, when he wrote his article on diseases of the prostate in Morrow's *System of Genito-Urinary Diseases*, etc., in which he speaks as follows of a condition called by him hypertrophy of the prostatic sphincter: "By this tentative term I have designated a morbid condition hitherto unrecognized in standard works. Post, of Boston, has described it in one case as a 'fibrous ring' in the prostatic urethra. Neither name is founded upon post-mortem examination, and both may hereafter be shown to be inaccurate."

As a clinical illustration, Belfield cites the case of a boy, nineteen years of age, who had had cystitis as long as he could remember, associated with frequent and painful micturition. On making a urethral

examination, a sound was arrested in the prostatic urethra by an obstacle that permitted only a fine bougie to pass. On making a perineal section, the author says: "The finger introduced through the incision found the distal end of the prostatic urethra closed and resisting all the force that could be safely applied; by means of conical bougies and forceps the channel was gradually dilated until the finger passed the obstruction, which was found to be a band of firm tissue surrounding the outer third of the prostatic urethra."

In this condition described by Belfield, a tight stricture of the prostatic urethra existed. In the condition I have illustrated no narrowing of the prostatic urethra has been found sufficient to prevent the passage into the bladder of a sound as large as the anterior urethra can take. In Belfield's case also the lesion complained of might be supposed to be a congenital one, since it occurred in a boy of nineteen years, who from his history had suffered from it as long as he could remember. The lesion I have described is apparently an acquired one, and in all cases has seemed to have been preceded by a condition of long-standing muscular spasm of the part. I have looked up Post's case, to which Belfield refers (*Boston Medical and Surgical Journal*, April 23, 1891), and which he takes to be representative of what he has called hypertrophy of the prostatic sphincter. This case of Post's certainly has nothing in common with what I have designated as chronic contraction of the prostatic fibres encircling the vesical neck, and consequently furnishes another good reason for supposing that the condition referred to by Belfield bears no relation to what I have described. In speaking of the examination of the prostate per rectum in his case, Post says: "The enlargement was slightly more prominent on one side, but perfectly smooth, and so large that the finger could not reach beyond its upper border." It is a feature of the condition I have described, that the examination per rectum shows no prostatic enlargement. In Post's case no instrument could be made to enter the bladder. There was a history of perineal traumatism in early life. On making perineal section and cutting through the hypertrophied prostate, Post says: "In hardness it resembled most closely a fibrous tumor, and as such I believe it ought to be classed."

Bangs (*Annals of Surgery*, April, 1893) has mentioned an interesting case of prostatic hypertrophy in a man, fifty-nine years old, complicated with vesical calculus and retention, in which no relief followed suprapubic cystotomy, by which the stone and projecting prostatic outgrowths were removed, but which he subsequently completely relieved, restoring also the function of micturition, by means of a perineal section and Dolbeau's dilator. The condition of rigidity of the prostate associated with senile hypertrophy has, however, no probable relation to what I have described.

REVIEWS.

RECENT WORKS ON HYPNOTISM.

TELEPATHY AND THE SUBLIMINAL SELF. An Account of Recent Investigations Regarding Hypnotism, Automatism, Dreams, Phantasms, and Related Phenomena. By R. OSGOOD MASON, A.M., M.D. New York: Henry Holt & Co., 1897.

HYPNOTISM AND ITS APPLICATION TO PRACTICAL MEDICINE. By OTTO GEORG WETTERSTRAND, M.D. Authorized Translation by HENRIK G. PETERSEN, M.D., etc. New York: G. P. Putnam's Sons, 1897.

THE general impression made upon us by Dr. Mason's book is that the author has not exercised the critical faculty which is absolutely essential in one who discusses the obscure phenomena of which it treats. The book is rather light and sketchy; it contains little original matter, and the spirit in which it deals with both the real and the alleged facts of the "borderland" of psychology is one of credulity rather than of science. Dr. Mason may not have intended it, but the tendency of his book is to exaggeration; and its effect, we think, will be to still further mystify untutored minds on subjects which for them are at best difficult of clear apprehension. He accepts the most *bizarre* cases, and occupies ulterior ground on all such subjects as telepathy, clairvoyance, and hypnotism. The author is evidently an enthusiast on the subject of the occult.

We think it opportune to call attention here to the fact that much is to-day masquerading under the garb of science that is in essence either charlatanry or wool-gathering. The rather sensational but not unintelligible phenomena of hypnotism have misled many minds—among them, unfortunately, the minds of not a few medical writers. Not only hasty generalizations, but the most deplorable extravagances in action and in writing have resulted. Dr. Mason does not sufficiently avoid these errors. We are far from imputing to him an unworthy motive; we simply judge him to be among those who occupy an advanced position of credulity rather than of common sense. That he himself considers that he is in the vanguard of "psychical researchers" is shown by his rather patronizing and expostulatory tone toward the old-fashioned scientists who decline so far to accept all the psychological fads of the day.

We think we are justified in making rather stringent criticism, and adduce one instance especially in our own defence. Dr. Mason, in his chapter on Clairvoyance, relates the case of a man who was accidentally shot in the thigh while hunting in Michigan. A protracted illness resulted, caused evidently by the retention of a foreign body in the wound. The surgical skill at hand seems not to have been adequate, for some reason, for diagnosing the case or for locating and removing this

body. The case—not the patient—was finally referred to a woman clairvoyant living in Connecticut. No details, however, of person, locality, or illness were given, except the meagre statement that a patient in a distant State had been shot. This clairvoyant, without stirring from her home, we are gravely told, "found the patient, described the wound, and declared that there was a piece of copper still in the wound." This proved to be a copper cent, which the wounded man himself did not even know that he had been carrying in his pocket at the time of the accident! Now, we submit that an author who can believe, and expect his readers to believe, that a woman stationed in Connecticut could find and pick out by a mental process a wounded man stationed hundreds of miles away in Michigan, whom she never saw or heard of, and who, for all she knew, might be in Maine or New Mexico; and, moreover, could detect in the depth of a wound in his thigh a copper cent, which the patient did not even know that he had had in his pocket—an author who can believe this, and attempt seriously to explain it by the theory of a genuine clairvoyant power, places himself clearly outside of the range of scientific criticism. We quote the tale as a fair example of the style and flavor of the author's book. Many other cases, quite as incredible, are scattered through his pages.

Dr. Mason believes in thought transference in the literal meaning of that term, *i. e.*, the transmission of mental influence from one person to another without the intermediation of any, at present, recognizable physical agent or channel. Space and time also are apparently annihilated in this process. He recognizes the "mind" as something apart from the physical brain, and "capable of intelligent action independent of the brain and the whole material organization through which it manifests itself." He believes in the personal magnetization of a glass of water, and is apparently misled by the term "duplex personality" to regard this phenomenon, not as a mere affection of consciousness, but as a true exhibition of distinct "egos." He speaks of a "subliminal self;" but what he means by it we have not been able to discover any more than we have been able to clearly understand Myers' original definition of the term. It is apparently any and every exaltation of consciousness that poets, philosophers, inventors, and dreamers, as well as the victims of hypnotism and lunacy, may exhibit. All this, we think, does not comport with a high standard of psychological research and analysis.

Dr. Mason's chapter on Hypnotism, which is the nearest approach to scientific writing in the book, does not do justice to the subject, because it is devoted almost exclusively to the exaggerated phases of this nervous disorder. The author himself is apparently "mesmerized" by his subject, and sees in it only wonders, mysteries, and prodigies. His object, here as elsewhere, appears, indeed, to be to excite the astonishment of the reader. We judge this tone to be due to the fact that the book is intended evidently for the lay public; indeed, it seems, from the preface, to have appeared originally in one of the New York daily newspapers. As a scientific presentation of hypnotism and allied phenomena it is an unsatisfactory work.

Dr. Wetterstrand's book is very different, both in scope and spirit, from Dr. Mason's. It deals very little with the theory of hypnotism, but almost entirely with its practical application. The book, in fact, is

little more than a catalogue of diseases for the cure or amelioration of which the author has practised hypnotism. It is, therefore, not especially instructive or entertaining reading, since the author almost invariably gives merely a short chronicle of the cases with a brief statement of his results. He is in the main cautious and reserved in tone, and evidently does not believe that hypnotism is a panacea—yet the personal bias in its favor is shown curiously in many places by an apparent failure to distinguish between the natural course of a disease and the effects of a remedy. This is strikingly shown when he claims that he relieved pain and procured euthanasia in a case of tubercular meningitis in a child aged seven years. When we recall the hebetude and dreamlike delirium, passing into coma, so often witnessed in this disease, it is natural to suppose that the author may have been rather too enthusiastic in his claims for the soothing effects of hypnotic suggestion. In other places it seems odd, to say the least, to read of such diseases as chronic catarrh of the stomach and diarrhœa being relieved with hypnotism. It must be said to the credit of Wetterstrand that he has a reason for his belief in every case, and his ingenious physiological and psychological explanations for the action of his remedy are not the least valuable parts of his work. As a book of practical instruction by an expert who aims evidently to avoid exaggeration, and who does not often claim to attain the unattainable, the work is a valuable one. The volume concludes with some interesting letters by Dr. Petersen, the translator, on Hypno-suggestion. J. H. L.

GUY'S HOSPITAL REPORTS. Vol. LII. Third series, Vol. XXXVII. Edited by E. C. PERRY, M.A., M.D., and W. H. A. JACOBSON, M.A., M.Ch. London: J. & A. Churchill, 1896.

ST. THOMAS'S HOSPITAL REPORTS. New series, Vol. XXIV., 1895. Edited by Dr. T. D. ACKLAND and Mr. BERNARD PITTS. London: J. & A. Churchill, 1897.

THE opening article in *Guy's Hospital Reports* is a very interesting memoir of Arthur Edward Durham, whose active connection with Guy's covered a period of twenty-two years. While, of course, written more especially for the benefit of those who knew the subject of the article, any one reading it cannot fail to become interested in what was evidently a labor of love to the author.

Among the interesting articles are two by Frederick Taylor—one upon a case of shingles followed by paralysis of the abdominal muscles, the other upon cirrhosis of the liver in children. In the first of these, in addition to the report of a case, the author reviews other recorded cases of muscular lesions following herpes zoster. In the latter article three cases are recorded occurring in children aged thirteen, twelve, and six years, and the author discusses the relative frequency of the various forms of cirrhosis and their mutual relationship.

An elaborate article upon the urinary excretion in gout and the effect of treatment with colchicum and sodium salicylate is contributed by John Fawcett, in which the conclusions are reached that in cases treated with the former drug the amount of uric acid excreted is

variable, but usually less than the normal; that during the later days of an acute attack uric acid is usually, but not invariably, increased in amount; that after the acute attack uric-acid excretion is much reduced; that uric-acid excretion and urinary acidity do not run parallel; and that the administration of colchicum does not increase the uric-acid output. He found, however, that a rise in the excretion of uric acid followed the use of sodium salicylate.

C. R. A. Sutton, M.D., contributes an article upon albuminuric retinitis from the standpoint of prognosis and pathology. In regard to pathogenesis the author is of the opinion that poverty of the blood is the main factor in the causation of the condition, but relies for his proof chiefly upon the frequency of retinal changes in other diseases accompanied by anæmia. It would seem to the reviewer that his arguments are by no means convincing.

A case of splenic anæmia occurring in a child aged thirteen years is reported by Frederick Taylor; one of successful pylorectomy for carcinoma by L. A. Dunn.

The opening article in the volume of *St. Thomas's Hospital Reports* is a comprehensive and exhaustive review of the subject of osteo-arthropathy, by F. Rufenacht Walters. Sixty-seven recorded cases are carefully analyzed and placed in the three following classes: 1. Typical osteo-arthropathy, with bony changes and a peculiar form of clubbed fingers. 2. Cases with the peculiarly clubbed fingers alone. 3. Cases of apparent primary enlargement of the extremities and others of uncertain nature. A complete description of the conditions present in a typical case, an account of the macro- and microscopic bony changes found, and an analysis of the symptoms and signs referable to other organs and symptoms follow. The subject of diagnosis is well handled, especially in regard to the differentiation of this condition and acromegaly. One point worthy of mention is the statement that in the latter affection the nails are normal in appearance, whereas many writers state that in acromegaly both striation and fissuration are frequent. In only six of the cases analyzed was a preceding disease of the lung absent, the character of the thoracic trouble being most frequently either empyema or pleuritic effusion (18), chronic bronchitis or bronchiectasis (14), or phthisis (9). He believes, with others, that the absorption of toxins is the cause of the hypertrophic change. In the first class—that of typical cases—he analyzes forty-one cases, giving a résumé of the clinical history, the place of publication, and remarks upon the case. Twelve cases are given under his second class, or those with involvement of toes and fingers alone, while under the third division he considers twelve cases either of doubtful nature or insufficiently reported. A copious bibliography is added, with a letter from E. Legrain, of Algeria, upon the frequency of the affection in the Sahara and upon the possible bearing of the large proportion of magnesia in the drinking-water upon its etiology. The article is one of great value.

For some reason, not altogether clear, an interesting article by the late George Rainey upon "Artificial Production of Certain Organic Forms," is here reproduced from the *Medical Times and Gazette* for 1868.

G. H. Makins reports three interesting cases of injury to abdominal viscera—a traumatic cyst of the pancreas following rupture of that organ, with cure by incision and drainage; a case of rupture of the

ascending colon, with cure by laparotomy after abscess-formation; and a case of rupture of the liver, with subsequent empyema and perisplenic abscess, and death from a purely coincidental obstruction of the bowel by a Meckel's diverticulum. The report of the last case is especially instructive from the great obscurity in diagnosis and the many physical signs of peculiar distribution and significance.

F. R. Walters reports a case of pulmonary hyperplastic osteo-arthritis, the article being illustrated by excellent photo- and skiagraphs.

An analysis of autopsies performed upon children born dead or shortly dying is contributed by Robert Cory, the article being a continuation of two papers upon the same subject by the author in previous volumes of the reports.

In an instructive article by F. Foord Caiger, of the Southwestern Fever Hospital, the subject of relapse in the specific fevers is well treated. Statistics are given regarding the frequency and characters of relapse in enteric fever, diphtheria, scarlatina, smallpox, whooping-cough, rötheln, measles, and varicella. During the past year the percentage of relapse in 650 cases of enteric fever treated in the Asylum Board Hospitals was 9.8 per cent. One case of relapse is mentioned as occurring in the author's own experience, where the apyrexial period reached the extraordinary length of six weeks. A brief review of the various theories as to the cause of relapse is followed by the statement that, though he is not prepared so to state positively, the author thinks it possible that the cold-bath treatment may, with "any treatment of a repressive or abortive character," be very likely to conduce to subsequent relapses.

In regard to relapse in diphtheria, he states that among the cases treated in the Metropolitan Asylum Board Hospitals the relapse percentage was 1.4 per cent. with antitoxin, as compared with 0.9 per cent. in 1894, when antitoxin was not used. He properly holds that such a small increase in relapse percentage is no argument against the employment of antitoxin, as "it simply means that another dose or two was required to complete the protection."

Enteric fever and sewage-gas is the subject of a paper by W. Wellington Lake, based on an epidemic occurring in a home where sources other than a defective drain independent of the water-supply would seem to be eliminated as the source of contagion.

In the statistical and analytical tables of the cases treated at the hospital are many interesting and instructive case-histories. In the statistical tables of the diphtheria cases there are some interesting ratios bearing upon the use of antitoxin which confirm the results of other hospitals. It will be sufficient here to mention Table III., showing a mortality-rate of 23.42 per cent. with antitoxin as against 40.56 per cent. in 1894 without antitoxin.

The typhoid fever mortality for the year was 12.5 per cent. in 64 cases.

Among many other interesting points brought out in the statistical report might be mentioned one of acromegaly treated by pituitary feeding without specific effect, several cases of malignant disease of the pancreas, and a large number of surgical conditions valuable for statistical purposes.

The volume will serve as a model for hospital reports that may contribute to the advancement of medicine. F. A. P.

INTERNATIONAL CLINICS. A QUARTERLY OF CLINICAL LECTURES ON MEDICINE, NEUROLOGY, SURGERY, GYNECOLOGY, OBSTETRICS, OPHTHALMOLOGY, LARYNGOLOGY, PHARYNGOLOGY, RHINOLOGY, OTOLOGY, AND DERMATOLOGY, AND SPECIALLY-PREPARED ARTICLES ON TREATMENT. By Professors and Lecturers in the Leading Medical Colleges of the United States, Germany, Austria, France, Great Britain, and Canada. Edited by JUDSON DALAND, M.D., Philadelphia, Instructor in Clinical Medicine and Lecturer on Physical Diagnosis in the University of Pennsylvania; Assistant Physician to the Hospital of the University of Pennsylvania; Professor of Diseases of the Chest in the Philadelphia Polyclinic; Fellow of the College of Physicians of Philadelphia. J. MITCHELL BRUCE, M.D., F.R.C.P., London, England, Physician to and Lecturer on the Principles and Practice of Medicine in the Charing Cross Hospital. DAVID W. FINLAY, M.D., F.R.C.P., Aberdeen, Scotland, Professor of Practice of Medicine in the University of Aberdeen; Physician to and Lecturer on Clinical Medicine in the Aberdeen Royal Infirmary; Consulting Physician to the Royal Hospital for Diseases of the Chest, London. Vol. I., Seventh Series, 1897. Philadelphia: J. B. Lippincott Company, 1897.

DR. J. WILLIAM WHITE opens the series with a lecture on Rules Governing the Treatment of Appendicitis, which, in the main, are practical and clearly given. Incidentally, he says that pain is felt in the right iliac fossa because there is a neuritis of sufficient grade to cause tenderness on pressure. In acute inflammatory conditions the presence of true neuritis is not necessary to account for tenderness. Neuritis has a slow onset and a slow recovery not observed in early inflammatory engorgement of other tissues. While there are few disorders in which hard-and-fast rules can be applied with so little readiness as in the treatment of appendicitis, it is of value to crystallize experience, each operator for himself; and this is what has been done in the article under consideration. On page 6 the following rule is given: "In cases seen at any time after the fourth day, operation is certainly indicated whenever a firm, slowly-forming, well-defined mass in the right iliac fossa is to be felt," etc. From this portion of the rule strong dissent may be expressed. When no pitting is present, or general signs of pus-formation, the cases with firm exudate are difficult of operation and will generally recover. After the fourth day such cases are too late for early operation and too early for immediate operation; they should, therefore, if possible, be reserved for operation at a later date, when nearly all the mass of exudate will have disappeared.

The writer calls attention to the great value of the presence or absence of peristalsis as an indication for or against interference in exceedingly grave cases. The remarks on recurrent or chronic relapsing appendicitis are in general marked by intelligent discrimination. The three conclusions are worth quotation. The first needs intelligent interpretation, but is sound, viz.: "One attack of appendicitis of mild type definitely related to some dietetic or hygienic indiscretion does not of itself indicate operation." The second rule, he thinks, will admit sometimes of judicious exceptions. It is as follows: "If a first attack of appendicitis has been severe, or if more than one attack of any variety occurs, removal of the appendix should be advised during a period of quiescence." Cautious, indeed, must the surgeon be who would take the responsibility

of making exceptions to that rule. The third is stated confidently. "The persistence of local symptoms after an acute appendicitis, especially when they are associated with general ill health, indicates operation in every instance." In a brief sketch of technique the writer states the instances where, in his judgment, the appendix should not be removed at the operation.

An article by E. E. Montgomery, on "Sloughing Fibroid," is based upon a case of small submucous growth already partly extruded. A brief discussion of the general methods of treating fibroids is given. Some attention might have been devoted under the title to the dangerous cases where sloughing occurs in areas of large interstitial tumors.

Dr. E. P. Davis contributes an interesting clinical lecture upon "Tuberculosis of the Breast During Pregnancy: Acute Polyhydramnios and its Treatment." The treatment in the last-named condition consisted in emptying the uterus, with good results to the mothers in the two cases cited.

In a readable article on the "Faculty of Speech," Dr. G. Hudson Makuen illustrates by cases some anomalies of speech-organs and their operative correction. A striking case is given where excellent speech and a remarkable development of the intellect were obtained by lengthening a congenitally short genio-hyoglossus muscle in a boy of nineteen years who was supposed to be of weak mind and who could utter but four intelligible syllables.

Professor Fournier, of Paris, considering briefly the "Hypodermatic Treatment of Syphilis," reaches the conclusion that the disadvantages of this method are sufficiently great to prevent its use except in cases where the symptoms are particularly urgent, and these cases he would select with care.

T. McCall Anderson relates several cases of less common forms and modes of treatment of syphilitic affections. One of the most striking is a case of supposed Hodgkin's disease, where a large tumor of the neck and chest entirely disappeared under the iodide of potassium. A case is given of secondary syphilis treated with good immediate results by means of serum obtained from a syphilitic ward-patient who had had his initial lesion two years before. Two cases are given with almost identical lesions on the nose; one treated by iodide of potassium and calomel ointment, with good results; the other with antisyphilitic serum, Burroughs & Wellcome, but the ulcer, though healing in some places, extended slowly in others, and after two months the injections were given up.

W. W. Keen makes a suggestive plea for the use of systematic methods in case-recording and case-using, with remarks on available aids to literary work, such as card indexes, methods of filing, the use of libraries and journals. The article is worthy of a thoughtful perusal.

Practical knowledge of acute rhinitis and its treatment is none too widespread. W. E. Casselberry, of Chicago, contributes to this knowledge and indicates those measures which have value, not the least important being attention to mode of life, ventilation, and clothing.

Space does not permit a reference to many excellent lectures which adorn the volume. That form which adapts them to the audience-room makes them easier to read. While the popular style leads in some cases to discursiveness, the volume as a whole is a most creditable one, and will add to the value of the series. G. E. S.

OM RÖNTGEN'S STRALAR I HJARNKIRURGIENS TJANST. (ON THE USE OF THE RÖNTGEN RAYS IN BRAIN SURGERY.) By S. E. HENSCHEN and K. G. LENNANDER, Nordiskt mediciniskt Arkiv., 1897. No. 30. Festival number of Axel Key.

THIS is a small reprint of a few pages, but is important from two points of view: first, in its physiology, and, secondly, in the application of physical science to surgery. The case may be briefly stated as follows: A man of thirty-three years, in good health, was wounded on August 12, 1895, by a pistol-ball in the inner angle of the left eye. The ball passed to the right and upward. The man fell unconscious, and remained unconscious for three weeks while in the hospital. The left side was anæsthetic, and it was necessary to feed him artificially. When he became conscious he was like an infant, not appreciating his situation and being able neither to speak nor to comprehend that which was spoken to him. Little by little, however, speech returned. At Christmas, 1895, he was able to go home by himself. The following August, however, marked headache in the right occipital region followed. He, therefore, re-entered the hospital of Upsala September 2, 1896. At that time he had slight aphasia, and it was difficult for him to read and write spontaneously, but he could calculate with ease. Smell was entirely gone.

The left eye, having been destroyed by the ball, was removed. The visual field of the right eye was normal, but with a slight diminution in acuity of vision toward the *inferior nasal quadrant*. Movements of the eyeball were normal and there was no hemianopic pupillary reaction. There was a slight paresis of the left side of the face and paralysis of the entire left side of the body. Hearing was good on both sides. The left shoulder was slightly paretic. The tongue deviated to the left. His gait was hemiplegic; the reflexes were reinforced on the left side.

Two skiagraphs were taken, which are reproduced in the original paper, as also are the visual fields at different times. The first skiagraph, taken sidewise, shows the ball in the occipital region, and the second skiagraph taken from behind shows the exact position of the ball to the right of the median line. Combining the two pictures, therefore, the position of the ball was determined with accuracy. An osteoplastic flap being made and the dura incised, the brain was seen to be a little darker in color at the point where it was deemed that the ball lay. Palpation showed that it was less elastic, and, on the introduction of a fine needle, at a depth of 1 cm. the ball was felt and removed through an incision in the cortex. A capsule had begun to form around the projectile. The wound was closed, and the patient made an excellent recovery and was free from his pain.

The importance of the case from the use of the Röntgen rays in locating the ball is obvious. It is the first case, we believe, in which a ball within the cranium has been shown in an adult and has been removed. Only fifteen months ago the writers of an article on the use of the x-rays in this JOURNAL, of whom the reviewer was one, believed that it would be impossible for the x-rays to show a ball within the cranium. This case shows how rapid the improvements have been.

According to the researches of M. Henschen, the fibres supplying this portion of the field come from the level of the first and second temporal convolutions. The ball, therefore, was diagnosticated as being back of this point and not far from the cortex. The operative findings confirm this.

W. W. K.

PROGRESS

OF

MEDICAL SCIENCE.

THERAPEUTICS.

UNDER THE CHARGE OF

REYNOLD W. WILCOX, M.D., LL.D.,

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The Use of Analgen in Infantile Therapeutics.—Dr. Moncorvo, from an extensive use of this remedy, chemically known as ortho-ethoxyl-ana-mono-benzoyl-amido-quinolin, concludes that: (1) Analgen possesses a well-marked antithermic action, and is an efficacious analgesic and nervine. (2) It is harmless even with young children, who take it readily because it is tasteless. (3) In the malarial fever of children from twenty days to thirteen years of age it has undeniable efficacy. (4) It is valuable as an antipyretic in acute tuberculosis and lymphangitis. (5) In chorea, hysteria, and partial epilepsy it causes the muscular twitching to disappear and acts as a sedative. (6) It will be found useful for relief of pain of various kinds, neuralgia, Pott's disease, and tuberculosis of the hip-joint. (7) It is always well borne, not giving rise to exanthemata, adynamia, vertigo, headaches, or auditory disturbances. (8) In large doses or after prolonged use it produces a reddish-yellow color in the urine due to blood-coloring matter, but analysis fails to show either albumin or sugar. (9) The drug should be given in daily dose of from five to forty-five grains, either suspended in julep or in capsules. —*Bulletin Général de Thérapeutique*, 1896, 12e liv. p. 529.

The Superiority of Warm over Cold Baths in the Acute Diseases of Infancy.—Dr. Ch. Fiessinger notes that it is not the fever which is important, but the poisoning. Here cold baths are useful in elimination; but while they may possess advantages, these may be counterbalanced by their inconvenience. The cold bath stimulates, but this stimulation weakens the organism in nervous debility. Especially in infants we note the prostration consecutive to cold bathing. This prostration which follows is further increased by the cries of the child, frightened by contact with water of low temperature. These objections do not hold as to warm baths, and it is likely that this will be the systematic bathing of the future for children, for the

lessened stimulation of the nervous system will permit it to be used as frequently as may be necessary.—*Journal des Praticiens*, 1896, No. 50, p. 790.

On Tapping the Pericardium.—Mr. Austin Meldon closes his report of two successful cases by quoting West's conclusions, which he believes should be adopted by the profession. These are: (1) *Paracentesis pericardii* is not only justifiable, but an operation which may be safely undertaken with ordinary precautions. One case only is recorded in which the operation was fatal. With this exception all the patients were greatly relieved by the removal even of a small amount of the fluid, and many recovered completely who would probably have died if the operation had not been performed. (2) The most suitable place for puncture is, in ordinary cases, in the fifth left intercostal space, one inch from the edge of the sternum; but if the pleura be adherent, the puncture may be safely made much further out, and even in the sixth space. (3) The instruments employed should be a trocar and canula, with or without aspiration. (4) The operation may be performed with advantage not only in the pericardial effusions of rheumatic or primary origin, but also in those which occur in the later stages of general dropsy, if it should appear that the fluid in the pericardium is adding to the difficulties under which the heart is placed. (5) Purulent pericarditis is best treated on general principles like an empyema. (*a*) The pericardial sac may in these cases be safely opened and drained. (*b*) The treatment, moreover, appears to be the only one which offers the slightest hope of recovery. (*c*) The results are likely to be more favorable than those of empyema, for the walls of the cavity are better able to contract rapidly and thus permit of complete obliteration.—*Medical Press and Circular*, 1896, No. 3006, p. 622.

The Treatment of Bacteriuria.—Dr. Albert Hogge prefers the use of salol, which is well borne, in a minimal dose of forty to sixty grains daily. The bacteria have disappeared within three days of treatment when four or five bladder-washings with corrosive sublimate (1 to 2000) or silver nitrate (1 to 100) had failed. Local treatment, as instillations of 3 to 5 per cent. silver nitrate or 5 per cent. copper sulphate solutions, has also been found to be of less value than salol.—*Therapeutische Wochenschrift*, 1896, No. 51, S. 1269.

The Treatment of Gonorrhœa by Airol [Bismuth Oxy-iodo-gallate].—Dr. W. Howald makes use of the following formula: ariol, 2; distilled water, 5; glycerin, 15. Upon standing, owing to separation of the iodine, the emulsion becomes stained a yellowish color, which does not unfit it for use. Injections of two drachms, after urination, are administered twice each week. The first injection usually gives rise to a burning sensation, which completely disappears after the second or third. The injections should be retained for ten minutes. Upon the occurrence of cystitis and acute epididymitis, oil of sandalwood or salol was substituted for the injections. The fact that the former was constantly used at the same time with the injections naturally diminishes the value of the report. Of twenty patients suffering from acute gonorrhœa twelve were completely healed in a short time, while in the urine of six at their discharge tripper-fäden

were found. The number of injections varied from two to sixteen, the latter number being necessary on account of relapse brought on by the excesses of the patient. Two patients only were not so rapidly benefited: one an alcoholic subject, the other one upon whom daily injections caused severe urethral irritation. The average number of injections before the disappearance of the gonococci was 2.5, and before the cessation of the discharge 4.8. In some patients the fäden rapidly disappeared, in others the injections seemed to have but a slight influence. In chronic gonorrhœa the results are not so favorable. Of eleven patients three were speedily cured, but these presented only mild symptoms. The discharge ceased after an average of 2.6 injections. In four instances the fäden quickly disappeared; in the remainder the remedy apparently had but little influence. From these observations it may be stated that this remedy is an excellent one for checking discharge.—*Correspondenz-Blatt für Schweizer Aerzte*, 1896, No. 24, S. 753.

Senecio Vulgaris as an Emmenagogue.—MM. DALCHÉ and HEINE have used fluid extracts made from the aërial parts and the subterranean; the latter only, contains the two alkaloids senecine and senecionine. In practice it would appear that the fluid extract made from the subterranean parts was more constant in action, more rapid, and requires a smaller dose. The dose of the latter is from twenty-five to sixty drops in an ounce and a half of sweetened water; of the former the dose is one-fourth more. This remedy should be administered for different purposes, whether it is designed to relieve painful menstruation or to produce an appearance of the flow. When used to soothe the pain which precedes, accompanies, or follows the appearance of the flow it was found to possess some action upon the uterus and adnexa, even if they are diseased, although relief of the dysmenorrhœa occurring with metritis or peri-uterine inflammations is much less marked. When this drug has been given for the relief of amenorrhœa only failures have been met with. On the other hand, when dysmenorrhœa has been treated by the drug, successfully or otherwise, it was noted that twice the flow was slightly increased in amount, six times diminished, and ten times it was normal in quantity. In general, action of the drug seems to leave the amount of flow either normal or lessened rather than to increase it, and this probably explains the failures in amenorrhœa. So far as concerns other organs of the body, it does not appear to have any analgesic effect. On the other hand, its administration has not been followed by untoward effects. So far as may be decided from the results obtained from its administration to domestic animals, therapeutic doses of the fluid extract do not cause poisoning (by accumulation) nor abortion; yet the usual rules of prudence must not be neglected when it is given to women who may be presumed to be pregnant.—*Les Nouveaux Remèdes*, 1896, No. 23, p. 697.

The Use of Amylene Hydrate in Diabetes Insipidus.—DR. H. BRACKMANN states that this drug is considered to be so entirely hypnotic in its action that its property of modifying secretions has been entirely lost sight of. Scharschmidt alone notes that some patients perspire at the commencement of its use. In the single instance reported an evening dose of fifty grains diminished the thirst, lessened the quantity from 230 to 100 ounces,

and raised the specific gravity from 1005 to 1011 in six days. On the omission of the remedy the symptoms returned.—*Therapeutische Monatshefte*, 1896, Heft xii. S. 641.

Treatment of Infectious Pneumonia by Cold Compresses.—Dr. Klein describes the method as follows: A napkin large enough to reach from the top of the sternum to the stomach and cover the anterior and both lateral surfaces of the chest is dipped in cold water at a temperature of 46° to 50° F. and applied to the chest. At the end of five minutes it is replaced by a cold one, and this treatment is continued for an hour. After a half-hour's rest three similar series are carried out. Two instances of their use are reported. He explains his results by the stimulation of the nervous and muscular systems. The dyspnœa is relieved because, with the deeper respiration, it becomes slower. Inasmuch as the treatment seems to be free from danger and is acceptable to the patients, it should be made use of.—*Bulletin Général de Thérapeutique*, 1897, 6e liv. p. 270.

Ten Years' Experience with the Cold-bath Treatment of Typhoid Fever.—Dr. F. E. Hare reports that the mortality in 1828 cases treated during the expectant period of five years was 14.8 per cent. Following this came the period of cold bathing, 1902 cases, with a mortality of 7.5 per cent. Of the 143 fatal cases in the last series, 56 died from perforation, 23 from hemorrhage, and 64 from other causes. In comparison with the expectant treatment we may say that perforation and hemorrhage, which together used to cause only about one-fourth of the total deaths, now under the bath-treatment cause more than half. This series of cases under consideration includes all which could fairly be called typhoid, save 23 under treatment. It includes, therefore, many that were not bathed at all, because such treatment was contraindicated; many more were not bathed because the pyrexia was insufficiently high to require it; many that were hopeless on admission; some that died from old-standing or intercurrent disease during the course of an attack of typhoid, and some that were only determined to be typhoid by the necropsy.—*The Australasian Medical Gazette*, 1897, No. 186, p. 111.

[So far as this report shows anything, it indicates that cold-bathing has not reduced, to say the least, the mortality from the two great dangers of typhoid fever—perforation and hemorrhage.—R. W. W.]

Puerperal Septicæmia Treated with Nuclein.—Dr. Henry M. Joy considers that the surgical treatment should remove or limit, so far as is possible, the source from which the toxic elements are supplied to the blood, and the medical should aid nature in her efforts to overcome the poisons already in the system; that is to say, to increase the antitoxic constituents of the blood or to strengthen those constituents which are already present. One instance of the use of a 5 per cent. solution of nuclein, given in drachm doses every three hours, is reported. Douches were also given daily by the nurse. There was no recurrence of the chills after the second day, although the temperature remained approximately the same for six days, when the crisis occurred. Although during this time there was little variation in the height of the temperature, the daily remissions were marked and the pulse

continued to fall steadily and to improve in quality, the general condition being one of progression. The patient's mental condition changed rapidly for the better, the appetite returned, and the skin resumed its normal color. Nuclein evidently strengthens nature's antitoxic elements in acting promptly and favorably upon leucocytosis, causing no unpleasant complication or effects, and rapidly diminishes fœtid discharges.—*Therapeutic Gazette*, 1897, No. 5, p. 296.

Chelidonium Majus in the Treatment of Cancer.—Dr. C. D. Spivak has collected the reported cases of fourteen observers, and finds that of 61 treated, 33 improved under this treatment. The general sentiment, based upon the favorable cases reported by reputable physicians and the microscopical examinations of cancerous tissue made after the injections, is that (1) the drug undoubtedly has some influence upon cancerous tissue which requires further investigation; (2) the experiments are not numerous enough to warrant definite conclusions; (3) the drug being very unstable, many of the unfavorable cases may be attributed to the inefficiency of the preparation; and (4) probably the technique of the administration is not yet perfected.—*Therapeutic Gazette*, 1897, No. 4, p. 229.

The Causation of Chloroform Syncope.—Mr. Leonard Hill concludes that: (1) Chloroform produces a primary failure of the circulating mechanism and a secondary failure of the respiratory centre. The respiratory centre fails to act not only because it is damaged by the drug, but because of the anæmia of the spinal bulb produced by the fall of arterial tension. This is proved by the fact that the action of the respiratory centre can be renewed by raising the arterial tension. The depth of anæsthesia depends, as does the paralysis of the respiratory centre, on the primary fall of the arterial tension. (2) It, more than any other known agent, rapidly abolishes the vascular mechanisms which compensate for the hydrostatic effect of gravity. (3) It abolishes these mechanisms by paralyzing the splanchnic vasomotor tone and by weakening the action of the respiratory pump. When these mechanisms are totally abolished the circulation is impossible if the subject be in the feet-down position. (4) It also produces paralytic dilatation of the heart. It acts directly like amyl nitrite on the musculature of the whole vascular system. (5) There are two forms of chloroform syncope: (*a*) During primary anæsthetization. The patient struggles, holds his breath, raises the intrathoracic pressure, congests his venous system, lowers his arterial tension, and finally takes deep inspirations and surcharges his lungs with chloroform. In the first stage the left heart becomes impoverished; in the second stage it is suddenly filled with blood. This is drawn from the lungs, and is full of chloroform. The chloroform passes into the coronary arteries, and the heart is thrown into paralytic dilatation. Respiration and the pulse either cease simultaneously, or the pulse before respiration. (*b*) During prolonged anæsthesia this arises from gradually giving chloroform to too great an extent. The arterial pressure falls lower and lower, and, secondarily, the respiration ceases because of the anæmia of the spinal bulb. The heart is not in this case paralyzed by chloroform, because the drug is taken in gradually by the shallow respirations and distributed slowly by the

feeble circulation. (6) Artificial respiration and the assumption of the horizontal position, if applied in time, will always resuscitate a patient from the second form of syncope. (7) Artificial respiration, established with the patient in the horizontal posture, is also the treatment indicated in the first form of syncope; the heart should be rhythmically compressed by squeezing the thorax. If this does not quickly renew the pulse, the patient should be put into the vertical feet-down posture. The dilated right heart is thereby completely and easily emptied of blood. Artificial respiration is maintained during this manœuvre, and the patient is brought once more into the horizontal posture. By rhythmic compression of the chest an efficient circulation is maintained through the coronary arteries; by first emptying and then filling the heart a fresh supply of blood is brought into that organ. If this does not prove successful on the first trial it can be repeated. (8) Inversion —that is, placing the subject in the feet-up position—or compression of the abdomen will increase the paralytic dilatation of the heart. In this kind of syncope both these forms of treatment are worse than useless. (9) In the condition of shock or emotional fear the compensatory mechanism for the effect of gravity is almost abolished, and chloroform may easily be the last straw to completely paralyze the circulation. (10) Vagus inhibition of the heart is of no importance as an agent in the production of chloroform syncope. (11) Ether is in every respect a far safer anæsthetic than chloroform. According to Ringer's experiments on the heart, ether is fifty times less dangerous than chloroform.—*British Medical Journal*, 1897, No. 1894, p. 957.

The Treatment of Chronic Alcoholism by Strychnine.—Dr. F. Combemale regards as the capital indication for its use the period of alcoholism without acute attacks. If there is an acute attack imminent, opium will prevent it, and strychnine then becomes useful in warding off another and in conducing to a complete cure. There are, however, instances when the drug cannot be used without adding an acute to the chronic poisoning. If there is marked fatty degeneration, a premature senescence of the tissues, failure of mental functions, an arcus senilis, or cardiac degeneration, the tissues cannot be regenerated by this drug. Further, if the organs of elimination do not act normally, there is danger of accident in its use.—*Gazette Hebdomadaire de Médecine et de Chirurgie*, 1897, No. 39, p. 457.

A Case of Susceptibility to Caffeine.—M. Dalché reports that a diabetic suffering from a secondary grippal pneumonia received four hypodermatic injections of a grain each in a day. As a result, there appeared agitation, loquacity, delirium, vomiting, cutaneous and muscular hyperæsthesia. Coma threatened, but there was no acetone or diacetic acid in the urine. The drug being omitted, all symptoms disappeared. There was a previous history of hysteria. Renal insufficiency was not brought in to explain these symptoms, but they were attributed to idiosyncrasy.—*Les Nouveaux Remèdes*, 1897, No. 7, p. 198.

Treatment of Spider-bites.—Dr. A. Davidson believes that most of the so-called spider-bites encountered in Southern California are inflicted by an

insect called the pirate-bug (*Rhasahus biguttatus*, Say), which is common in some periods in orchards, and may be found in streets and about dwellings, being attracted by the lights. The treatment of such wounds is the application of corrosive sublimate in solution (1 to 500 or 1000), locally, and keeping the necrotic part bathed in this.—*Therapeutic Gazette*, 1897, No. 2, p. 80.

A Case of Copaiva Poisoning.—Mr. William H. Thompson was called to see a young man, aged twenty-six years, on account of a rash which he had first noticed two days previously. He had been treated by a chemist for gonorrhœa for three weeks, during which time he had taken three capsules daily, each capsule containing (as was afterward ascertained) 10 minims of oil of copaiva. At first sight the patient looked as if he had measles, the whole of his face and neck being covered with an elevated, bright red rash. The face and eyelids were also much swollen. On further examination the rash, which disappeared on pressure, was found to cover his chest, abdomen, and upper and lower extremities. His skin was very irritable, and the scratches, which were numerous across his chest, bore evidence to the great amount of itching, of which he greatly complained. There was a very disagreeable odor about the patient, which he himself had not noticed. His temperature was 97.2°, pulse 110; urine of specific gravity 1030, no albumin, no sugar. On discontinuing the capsules the patient gradually improved, although the rash was evident on the anterior aspect of his thighs seven days later.—*British Medical Journal*, 1897, No. 1887, p. 522.

Excessive Urobilinuria Following the Administration of Trional.—Dr. Rolleston reports that a woman, aged fifty-seven years, who had suffered from dropsy, jaundice, and progressive shortness of breath, was found to have a dilated heart and slight œdema. There were also purpuric patches on the thorax and abdomen. The urine was high colored, but contained no bile nor albumin. On the first, sixth, and eighth evenings after admission twenty grains of trional were given. At the last dose the urine became of a deep orange color, and upon dilution the spectroscope showed a well-marked band of urobilin. The peculiar color, which became gradually lighter, remained until her death from exhaustion eight days later. Four days before death she became delirious and her temperature rose. At the necropsy a localized empyema between the lobes of the right lung, a dilated heart, and a non-cirrhotic nutmeg liver were found. It appeared probable that the patient had been subject for some time to a urobilin jaundice due to the purpuric patches and the nutmeg liver, and that this condition was increased by the administration of the drug.—*British Medical Journal*, 1897, No. 1890, p. 719.

Antipyrin Poisoning.—Dr. Scheel reports that a woman, aged fifty years, took a nostrum containing about seven grains of this drug. After an hour there followed marked swelling and redness of the upper lip; three hours later there were noticed pain and tears in the eyes, paralysis, swelling, and smarting of the tongue. Speech was difficult and disturbed by salivation. An hour after this came chilliness and sensations of heat; still later there supervened syncope, vomiting, and diarrhœa. The next morning there

was found an eruption upon the face; the next day on the lower arms, hands, and thighs, which resembled scarlet fever. There was marked burning and itching about anus and vulva. The face was swollen, especially the lips and eyelids, also the tongue and gums were swollen, painful, and coated. The following day the eruption extended over the whole body. The next morning herpes appeared upon the lips, chin, and anterior surface of the neck. These symptoms gradually disappeared within the next fortnight, although great weakness persisted. Severe desquamation closed the history of this decidedly unique case.—*Thérapeutische Monatshefte*, 1897, Heft 3, S. 161.

Poisoning by Pyrethrum.—Dr. Bosredon reports that a child of eleven months opened a box of this substance in powder and covered his face with it. Then followed pallor, vomiting, slowing of the heart-beats, and agitated respiration. Cure followed the administration of ipecacuanha.

Dr. Ferrand notes that it is difficult in this case to separate the asphyxia from mechanical obstruction of the respiratory passages produced by the powder from the symptoms resulting from the irritant and toxic properties of the drug.—*Revue de Thérapeutique*, 1897, No. 6, p. 187.

Bismuth-poisoning.—Dr. Amédée Dubreuilh reports that a man of thirty years, horse-car conductor, of usual good health, three times in eight years has suffered from an intense generalized scarlatiniform eruption lasting five days, and followed by desquamation, after having taken thirty to forty grains of bismuth subnitrate in a gum emulsion with syrup of quince, which had been prescribed for a severe summer diarrhœa. This idiosyncrasy has never been noted before, and that is the probable explanation. But it is well to remember that infectious erythemata followed by desquamation occur in the course of entero-colitis, enteric fever, and cholera, and possibly might occur in a severe summer diarrhœa. Poisoning by bismuth from external applications has not been recorded. Villejeau, by subcutaneous injections, produced stomatitis, erosions with sloughing, albuminuria, enteritis with bloody stools, and slight hepatic congestion. On the other hand, Matthieu gave a dyspeptic fifty ounces of bismuth subnitrate in eighty days without producing unfavorable symptoms. The drug, however, is very slightly soluble in the gastric juice, and in this case the eruption should be attributed either to a reflex from the gastric mucous membrane or to an idiosyncrasy rather than to failure of elimination of a drug which is with such difficulty absorbed.—*Bulletin Général de Thérapeutique*, 1897, 8e liv. p. 229.

Roentgen Rays.—Dr. H. Kaposi showed a patient at the Vienna Dermatological Society upon whom exposure to these rays caused the hairs of an extensive nævus pilosus to fall out. For about fourteen days there was an erythematous inflammation, which, however, did not cover all portions acted upon by the rays. It was suggested that the action of the rays, as in insolation, was to be attributed to the chemical influence of the ultra-violet rays, which cause hyperæmia and later a lasting paresis of the bloodvessels. While the rays of the sun act more upon the superficial vessels, those of Röntgen act upon the deep-lying vessels of the hair-papillæ and of the sebaceous follicles. Therefore it was believed that when the bloodvessels recovered

their normal tone, normal production of hair would take place. This belief proved to be true, and the hair has reformed, although there was extensive gangrene, due probably to alteration in the albuminous substances of the tissues.—*Wiener klinische Wochenschrift*, 1897, No. 16, S. 383.

Lead-poisoning.—Dr. Mannaberg observed six instances in one family, all presenting the blue line upon the gums, severe anæmia, muscular weakness, colics, and in some were found hard arteries, interference with intestinal digestion, and neuritis. An investigation showed that the source of the poison was papikra, which had been purchased cheaply to the amount of two pounds each month. Whether the lead was in the form of minium [lead oxide (red)] as a sophistication should be determined by chemical analysis.—*Münchener medicinische Wochenschrift*, 1897, No. 14, p. 375.

The Treatment of Uterine Carcinoma by Chelidonium Majus.—Dr. A. Duehrssen reports the failure of this remedy in a case in which the diagnosis was established by the microscope. Nineteen parenchymatous injections were made of equal parts of extract of celandine, glycerin, and distilled water, and, in addition, within a month, two ounces of the extract were given by the mouth. The treatment was without effect, and at the last report the patient was near to her death. The author warns against the use of such remedies, because in this way the time of operation may be delayed until it is impossible, and he believes that the only sure remedy against cancer is the knife of the surgeon.—*Deutsche medicinische Wochenschrift*, 1896, No. 49, S. 787.

M. Robinson reports the successful use of this remedy in one instance of cancer of the left upper jaw. The patient was under observation nine days, expressed herself as satisfied with the relief afforded, and anxious to continue treatment, and then was lost sight of. The author concludes that this drug seems to have a specific action upon cancerous tumors. The vigorous reaction which follows its use bears a certain resemblance to that of tuberculin. —*Bulletin Général de Thérapeutique*, 1896, 21e liv. p. 660.

[Apparently there was no microscopical examination made, and whatever may have been the result of the treatment, the explanation should be based upon the caustic properties of the drug.—R. W. W.]

Treatment of Psoriasis with Cacodylic Acid.—Dr. Daulas reports the successful use of this substance upon a man, aged forty-six years, who had suffered form this disease for twenty-six years. For the past six years he had received all forms of treatment, but without other treatment than this the disease retrograded, the exfoliation was less marked, the redness disappeared, and the thickening of the skin was lessened. The patient became paler, but did not lose flesh. The formula is: Cacodylic acid, 5; rum, 40; syrup of orange-peel, 40; distilled water, 120, with oil of peppermint for flavoring. Six teaspoonfuls of the mixture were taken each day for three weeks, when four were found to be sufficient. Beyond an odor of garlic in the breath and slight gastric disturbance at the third week, no untoward symptoms were noted.—*Therapeutische Wochenschrift*, 1897, No. 22, p. 560.

MEDICINE.

UNDER THE CHARGE OF

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A Severe Case of Abdominal Typhus Associated with Suppuration of the Gall-bladder.—ALEXIEEF reports, in the *Journal Dietskaya Meditzina*, 1896, No. 4, the following case: Flora M., aged five years, was taken on November 5 with chill and tenderness in glands on both sides of the neck, which diminished under treatment by ointment of iodide of potassium.

On the 11th the glands under the left sterno-mastoid began to enlarge, reaching the size of a hen's egg on the 13th. They suppurated, and on operation on the 18th a tablespoonful of white pus was removed. Though the patient for the first day or so seemed better, the temperature continued to rise gradually; after the 21st continued fever. On the 29th the spleen had become readily palpable. There was no apparent cause for the fever, the wound healing well. From this time on the fever remained almost continually above 39° C. The first week in December a roseola was made out on the chest and back. There was cough, with dry râles. The liver was outlined a little below the costal margin. During the second week in December the patient became very drowsy and was delirious; there was tenderness in the ileo-cæcal region. The râles at the bases more numerous; considerable expectoration; the roseola diminished, but still present. During the third week in December the patient became markedly worse, complaining of pain, especially in the right side of the abdomen. When lying on her back there was to be made out, four or five fingers' breadths below the costal margin on the right side, a rounded tumor about half the size of a small hen's egg. On percussion the tumor was pear-shaped, and the dulness was continuous with that of the liver. There was marked motion with respiration; it was elastic and somewhat tender on palpation. Distinct fremitus was found to be present on palpation between the 18th and 20th. Diarrhœa. The urine by this time had begun to contain a trace of albumin. On the night of the 20th and 22d the patient became much worse, complaining of great abdominal pain. Finally she became greatly excited, jumped out of bed; did not recognize those about her. She became very feeble and collapsed. Temperature 36.6° C.; pulse uncountable. Tinct. valer. æth. was given hypodermatically; by the following morning she became somewhat calmer. At this time the tumor, which had been palpable the day before, was no longer to be made out. The abdomen was much distended and tender. The bowels moved only by enema.

On the 25th patient was worse, complaining of severe pain in the right side; abdomen much distended; everywhere tender. Cries out with pain.

There is no jaundice. From the 29th to the 31st the temperature was somewhat lower, but the patient seemed much worse; lies on her back or on the right side, with the knees drawn up; can take no other position. The abdomen, especially on the right side, is distended and very tender. The outlines of the tumor, which were formerly made out, are not to be distinguished.

A diagnosis of cholecystitis or suppuration in the neighborhood of the gall-bladder was made and operation advised. This was performed on the 21st, an incision 9 cm. long, parallel to and two fingers below the costal margin on the right side, being made. On opening the abdominal cavity a serous fluid, colored with bile, escaped. The intestines were adherent; there was pus in the gall-bladder and surrounding it, suppuration having extended also into the prægastric area. The pus was emptied, drainage established, and the cavity packed with iodoform gauze. After the operation the patient was excessively weak, and 20 c.c. of salt solution was introduced hypodermatically.

The fluid obtained was examined by Dr. V. A. Kolli. It was an orange-colored fluid consisting of two layers: an upper, transparent and yellow; the lower, cloudy and whitish.

(1) *Microscopical Examination.*

(*a*) In fresh preparations there were masses of pus-corpuscles for the greater part in a condition of fatty degeneration, and finely granular detritus and a moderate number of red blood-corpuscles, and short, rapidly movable bacteria, about 2 to 4 mm. in length. Besides these there were masses of yellow pigment.

(*b*) In preparations colored by gentian-violet or methylene-blue the same picture was made out; the bacilli were colored sufficiently sharply. On staining by Ziehl-Neelsen's stain tubercle bacilli were not made out.

(2) *Bacteriological Examination.*

(*a*) Cultures on meat-peptone-glycerin agar at 38° C. gave in twenty-four hours only small colonies of a single variety of a bluish-gray color; under the microscope slightly granular. These colonies consist of short rods, 2 mm. long, possessed of rapid motion. On coloring by Gram's method the bacilli lose their color.

(*b*) With these bacilli inoculated upon sterilized milk during forty-eight hours at 38° C. they did not coagulate; in the control experiment inoculated with pure cultures of the bacillus coli communis the milk coagulated in twenty-four hours.

(*c*) Meat-peptone-gelatin, plus 1.5 per cent. grape-sugar, inoculated with the above-mentioned bacteria did not show any sign of gas formation (in control experiment with the bacillus coli communis there was a formation of gas).

(*d*) Cultures on cooked potato did not change the appearance of the surface. From the time of infection of the first gelatin and agar no new cultures appeared seventy-five hours after the inoculation. He concludes, as a result of all these studies, that they are justified in assuming that this bacillus which was found in the contents of the gall-bladder in pure culture was the bacillus typhi abdominalis.

After the operation the temperature was practically normal. The child

improved very much; the spleen was no longer palpable on the 13th of the month, and during the first week in February the temperature was normal and the patient began to walk about the room. From February 9th, however, without apparent cause, the patient's temperature began to rise and the condition became worse. By the 15th the child had become droswy and dull and weak; the abdomen was distended; the spleen was palpable; there was delirium. During the next several days the diazo-reaction was present in the urine. The temperature, however, began to fall, and by Feburary 21st was normal. During all this time the discharge in the healing of the wound had gone on satisfactorily. The discharge consisted of bile mixed at times with a little pus. On the 24th the discharge had stopped and the spleen was no longer palpable. By March 1st the patient was out of bed again.

From March 13th to the 17th the patient had a slight attack of pneumonia in the right lower lobe, from which, however, she recovered.

On March 26th the patient was well, up and about, and the wound entirely cicatrized.

The author believes that on the night between December 21st and 22d, when the patient had such severe abdominal pain and collapsed, the gall-bladder ruptured. He believes that the second attack of fever was a true relapse, though remarkably late in onset.

The patient's mother was ill at the same time with typhoid fever, dying in a relapse. He inclines to think that the lymphadenitis was an entirely separate affair, the complication of the two processes being wholly accidental.

Chronic Joint-disease in Children.—STILL (*Medico-Chirurgical Transactions*, 1897) published an interesting article on a form of chronic joint-disease in children which hitherto has not been generally recognized. While acknowledging that rheumatoid arthritis occasionally occurs in children, the writer believes that the disease which has most commonly been called rheumatoid arthritis in children differs both in its clinical aspect and in its morbid anatomy from the rheumatoid arthritis of adults. It presents differences sufficiently marked to suggest that it has a distinct pathology.

Still's article is based on a study of twenty-two cases, nineteen of which came under his personal observation.

The disease which Still studied is defined as a progressive enlargement of the joints, associated with general enlargement of the glands and enlargement of the spleen.

The onset is almost always before the second dentition; ten out of twelve cases began before the age of six years, and of these eight began within the first three years of life. The earliest was at fifteen months.

Girls are more commonly affected than boys. Seven of the twelve patients were girls; five were boys.

Onset is usually insidious. The child, if old enough, complains of stiffness in one or more joints, which slowly become enlarged, and subsequently other joints become affected. Occasionally the onset is acute, with pyrexia, and, it may be, with rigors.

The enlargement of the joints feels and looks more like general thickening of the tissues round the joint than a bony enlargement, and is correspondingly smooth and fusiform, with none of the bony irregularity of the rheu-

matoid arthritis of adults. There is an absence of osteophytic growth and of bony lipping, even after the disease has existed for years.

There is never any bony grating, although creaking, probably either of tendon or of cartilage, is frequently present. There is no redness or tenderness of the joints, except in very acute cases. Pain is generally absent, but it may be present in a slight degree, especially on movement. Limitation of movement, chiefly of extension, is almost always present. The child may be completely bedridden, owing to more or less rigid flexion of the joints.

The most common deformities of the hand consist of flexion of the wrist, with slight deviation of the hand to the ulnar side, and slight flexion of the proximal combined sometimes with slight flexion of the distal interphalangeal joint. The fingers may deviate very slightly to the radial side, but more often the deviation is at the proximal interphalangeal joint, and may be to either side. Deviations in both directions may be seen in the same hand.

The joints earliest affected were usually the knees, wrists, and those of the cervical spine, the subsequent order of affection being ankles, elbows, and fingers. The sterno-clavicular joint was affected in two out of twelve cases; the temporo-maxillary in three. The affection is symmetrical. There is no tendency to suppuration or bony anchylosis. The muscles moving the involved joints show early and marked wasting.

The electrical reactions showed nothing beyond a brisk response to the faradic and galvanic current in three cases.

The most distinct feature of the disease is the affection of the lymphatic glands. The enlargement is general, but involves primarily and chiefly those in relation to the involved joints. The glands are separate, rather hard than soft, not tender, and show no tendency to break down. They may become so large as to be visible, but more often do not become larger than a hazelnut. The enlargement seems to bear a definite relation to the progress of the disease in the joints. Slight affection of the glands is found very soon after the first symptoms of the joint affection, and as the latter increases the glands become larger. If the joint-affection subsides, the glands become smaller, increasing again in size if the joints become worse.

The glands most affected are the supra-trochlear, those along the brachial artery, and those in the axilla. In addition, those in Scarpa's triangle and deep in the iliac fossa along the iliac artery and those in the posterior cervical triangle are also involved. In one case the popliteal glands were enlarged, and in two cases there was evidence of enlargement of the mediastinal glands. Enlargement of the mesenteric glands was not made out, but in one autopsy the gland at the hilum of the spleen was enlarged.

The glandular enlargement may be said to be general and constant. It was present in all the twelve cases mentioned.

Splenic enlargement was also a striking feature. In nine of the twelve cases the edge was felt one or two fingers' breadths below the costal margin. The spleen was observed to increase or diminish according as the joints became worse or improved.

There was no evidence of organic heart-disease, although hæmic murmurs were present in some of the cases.

There were signs of adherent pericardium in two of the cases, and in three other cases adherent pericardium was found quite unexpectedly at autopsy.

Moderate anæmia was present in some of the cases, and in four out of the twelve moderate exophthalmos. Sweating was often profuse.

The temperature was of two varieties. One variety shows periods, generally lasting only a few days, of pyrexia followed by longer intervals of apyrexia; the other shows more or less continuous slight pyrexia.

There is a general arrest of development when the disease begins before the second dentition, the arrest being of bodily and not of mental development.

The course of the disease is slow. Improvement may occur for a time under treatment or spontaneously, but the disease soon progresses again until a condition of general joint-disease is reached, which seems to be permanently stationary. The disease is not in itself fatal.

The morbid anatomy of this disease was studied in three autopsies.

Still concludes from a study of these cases "that there is a disease occurring in children before the second dentition which is characterized clinically by elastic, fusiform enlargement of joints, without bony change, and also by enlargement of the gland and spleen."

The disease has hitherto been called rheumatoid arthritis, but it differs from that disease in adults clinically in the absence of bony change even when no disease is advanced, and in the enlargement of glands and spleen, and pathologically in the absence, even in advanced cases, of the cartilage changes which are found quite early in that disease, and also in the absence of osteophytic change.

These differences are not to be attributed merely to modification of the disease by difference of age, as there occurs also in children a disease in every respect identical with the rheumatoid arthritis of adults.

Under the head of rheumatoid arthritis in children at least three conditions have been confused, which are both clinically and pathologically distinct, namely: (1) The joint-disease described in the present paper; (2) a disease identical with rheumatoid arthritis of adults; (3) a disease probably identical with that described by Jaccoud as chronic fibrous rheumatism.

It is rather remarkable that the writer made no reference to tuberculous or syphilitic joint lesions and did not attempt to differentiate the disease he described from these affections.

Primary Carcinoma of the Pleura.—BENDA (*Deutsche medicin. Wochenschr.*, 1897, No. 21, S. 324) records a case of primary carcinoma of the pleura on which he performed an autopsy in September, 1895.

The patient, a workman, aged fifty-four years, was admitted to the hospital at Bethanien in December, 1894, ten months before death. For one year previous to admission he had complained of pain in the left side of the chest, and one month before admission the left pleural cavity was aspirated and three litres of fluid removed. A marked left-sided pleural exudate existed on entering the hospital. Patient was well-nourished, free from fever, urine free from albumin, and there were no special symptoms to arouse particular interest. The case was considered one of simple pleural exudate. Up to June, 1895, sixteen aspirations had been performed, large quantities of clear serous exudate, free from any formed elements, being removed on each occasion. The patient then left the hospital at Bethanien, and six

weeks later was admitted to the surgical ward of the hospital at Urban. As the patient was very anxious to have an operation performed, a rib was resected, revealing an extensive tumor connected with the pleura. Sections made from a portion of the tumor removed at the operation showed it to be carcinomatous in character. After the operation there was an abundant exudate in the left pleural cavity, which was at first serous. Fourteen days after the operation fever set in and the exudate became purulent. The patient died four weeks after the resection of the rib, with symptoms of pyæmia.

The autopsy showed that the immediate cause of death was due to the occurrence of an empyema of the left side, with metastatic abscess in the kidneys and skin. The pleural exudate showed the bacillus pyocyanus and streptococci, although the latter were not found in the cultures. The abscesses contained chiefly bacilli. Otherwise the organs were normal with the exception of the left pleura, which presented an extensive tumor formation. The entire pleura, pulmonary, costal and diaphragmatic, was studded with nodular masses scarcely reaching a cherry in size, with a tendency for them to become matted together, particularly at the apex of the lung. Adhesions between the pleural layers, with carcinomatous infiltration, were present at various points. The youngest tumor-masses resembled cardiac vegetations in appearance. The left lung showed areas of atelectasis due to compression, with a few abscesses, but no tumor nodules. The nodules were everywhere for the most part superficial. Only occasionally did a nodule tend to invade the lung. Some of those in the diaphragmatic pleura invaded the muscular tissue to a moderate degree. The mediastinal glands were enlarged, pigmented, but were free from tumor nodules. No growths were found in any other part of the body.

Microscopical examination showed the tumor to be made up of cells epithelial in type and a stroma. These were arranged so as to produce two different pictures according to the situation. Superficially they were so arranged as to resemble villi, showing a strong resemblance to the papillary formations in certain ovarian cysts. Here the cells were of a long, cylindrical type. In the deeper portions the cells were distributed so as to form columns, or in many places definite alveoli.

An interesting feature was that there was a gradual transformation in shape of the superficial endothelial cells to the tumor cells of a definite cylindrical form.

Orth, Ziegler, Seeliger, and recently Hansemann have stated that they believe the tumors of the serous cavities resemble the carcinomata more closely than the endotheliomata, but none of them, according to Benda, have recorded cases in support of this view. Benda claims that his case fills this gap, because at many points a definite transformation from the superficial endothelial cells to those of a typical carcinomatous type could be made out.

Diagnosis of Carcinoma Duodeni.—CZYGAN (*Archiv für Verdauungskrankheiten*, vol. iii. No. 1) reports a case in which a cancer involved the duodenum from 1 cm. below the pylorus to within about the same distance of the ductus choledochus. The following data led to a correct diagnosis intra vitam: 1. The very high nitrogen excretion pointed to malignant

disease; that is, to the carcinomatous nature of the tumor. 2. The great dilatation of the stomach made it probable that the obstruction was at or near the pylorus. 3. The free and combined HCl and the marked coagulating power of the stomach-contents made it probable that the stomach itself was not involved. There was splashing between the tumor and the liver, probably in the beginning of the small intestine. 4. The absence of leucin, tyrosin, and bile from the stomach-contents, and the absence of icterus, made it likely that the tumor was between the pylorus and the ductus choledochus.

An Uncommon Form of Pigmentation of the Skin in Addison's Disease.—TREBITSCH (*Zeit. f. klin. Med.*, 1897, Band xxxii. S. 163) reports a very interesting case of Addison's disease, with an unusual form of pigmentation of the skin. He refers briefly to the fact that involvement of the suprarenal glands is not constant in Addison's disease. The splanchnic nerves and sympathetic ganglia are diseased in a certain percentage of cases.

One of the most striking features of the disease is the pigmentation of the skin. The pigment is undoubtedly hæmatogenous in origin, but, as yet, the true cause of its deposition is not definitely known. When the pigmentation first appears it is either in the form of a diffuse bronzing of the skin or occurs as discrete patches, the former being the commoner. In either case those parts which are most exposed to the light and air and those situations where normal pigment is most abundant show the pigmentation most marked. Although the bronzing may be patchy at first, yet it is quite rare for the pigmentation to remain patchy throughout the course of the disease. He reports a case in which this feature persisted until death occurred.

The patient, male, aged twenty-one years, was admitted to the clinic on May 18, 1896, and died on May 20th. It was impossible to get a history from the patient himself, but an attendant gave the following account of the patient's illness:

For a few months he had gradually emaciated and complained of lassitude. Had never complained of pain. During the last few weeks small, dark patches of pigment appeared on the skin, especially on the face.

On admission patient's temperature was 36.2° C., pulse 120, respirations 20. He lay quietly on his back in a condition of stupor, and gave incoherent answers or none at all to questions asked.

The general color of the skin was a pale yellow, with a tinge of brown, the tinging being more marked on the face and hands than on the body. The face presented numerous light-brown to blackish patches, some of which were punctiform and others as large as millet-seeds. These were found everywhere on the skin of the face, and also on the eyelids, but not in the conjunctiva. The sclerotics were free from pigment. The pigmented areas were situated in the superficial layers of the skin, and there was no thickening to be made out in these situations. They were very clearly outlined from the surrounding skin.

Similar patches were present on the thorax and legs, but were larger and not so close together.

The pupils were of moderate size, equal, and reacted to light and accommodation. Fundus of the eye was normal. Visible mucous membranes were pale. The lips showed more or less confluent areas of pigmentation.

The hard palate presented a similar appearance, but the soft palate and pharynx showed no abnormal pigmentation. There was pigmentation of the inner side of the right cheek, extending as far back as the teeth on that side. There was no pigmentation of the laryngeal mucous membrane, matrix of nails, scrotum, penis, anal folds, or axillæ.

Thyroid gland was not enlarged. Radial pulse was almost imperceptible; expansion very slight; vessel wall soft.

There was nothing of note in the examination of the lungs, heart, liver, or spleen. The abdomen was retracted; pulsation of the abdominal aorta was distinctly visible and palpable. Examination of the urine was negative.

The patient died two days after admission. The autopsy showed isolated primary tuberculosis of both adrenal glands, with incipient tuberculous meningitis.

The chief point of interest in this case was the fact that there was no tendency on the part of the discrete pigmented areas to run together and become diffuse. The patches of pigmentation remained isolated throughout up to the time of death. Although the onset of pigmentation in Addison's disease is occasionally in the form of discrete patches, yet in nearly all these cases the pigmentation becomes diffuse before the fatal termination of the case.

Trebitsch states that these cases of Addison's disease might be mistaken for various affections in which pigmentation of the skin occurs. Among these he mentions the idiopathic multiple sarcomata of Kaposi, xeroderma pigmentosum, pigmented lesions following syphilis, and lentigines.

Changes in Metabolism and the White Blood-Corpuscles in Blood Dissolution.—KUHNAN (*Deutsch Archiv f. klin. Medicin*, 1897, Band lviii. 4 u. 5 Heft) studied the changes in metabolism and white corpuscles in diseases associated with dissolution of the red cells, and arrives at the following conclusions:

1 In blood dissolution there are marked leucocytosis and alterations in metabolism. The metabolic changes consist in:

(*a*) An increase in the uric acid and xanthin bases elimination.

(*b*) An increase in the excretion of phosphoric acid at first, followed by marked diminution later.

(*c*) An increase in the elimination of the chlorides.

(*d*) An establishment of a vicarious relationship between the chloride and phosphoric acid elimination, the retention of one being associated with an increased excretion of the other.

2. The increase in the alloxuric bodies (uric acid and xanthin bases) is dependent on an increased destruction of leucocytes.

3. The mother substance from which the alloxuric bodies are formed is contained chiefly in the plasma and serum of the blood, and to a much less extent in the red cells.

4. The amount of the uric acid forming substance is dependent on the richness of the blood in leucocytes.

5. The leucocytosis in blood dissolution is the result of the combined action of the following components:

(*a*) The direct leucotactic action of the blood poison.

(*b*) The action of the chemical substances (particularly the nuclein substance) resulting from the destruction of the corpuscular elements of the blood.

6. The leucocytosis resulting from the injection of corpuscular elements into the blood stream is a pure phagocytosis, and does not lead to any marked destruction of the leucocytes.

7. The increased leucocyte destruction in infectious diseases is due to the presence in the blood of a substance which destroys the vitality of the leucocyte.

SURGERY.

UNDER THE CHARGE OF

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Hypertrophy of the Gums.—HEATH (*British Medical Journal*, May 1, 1897) reports a remarkable and somewhat uncommon case of hypertrophy of the gums in the person of a young man, aged twenty-six years. Hypertrophy of the upper lip and a fulness of the cheeks were the most prominent features when the mouth was closed, but when the mouth was opened it reminded one of the mouth of a hippopotamus or rhinoceros on a small scale.

The history shows that the hypertrophy was first noted about four years previously, when there was a comparatively slight hypertrophy of the gums and no displacement of the teeth. This hypertrophy was removed at that time by operation. Three months later the patient noticed the growth again, and it has steadily increased during the last three years.

The external deformity was well marked on admission, and the gums were seen to be enormously hypertrophied when the mouth was open, and most of the teeth were loosened and displaced. The palate looked at first like a cleft palate, but this was due to the hypertrophied gum on each side covering the palate nearly to the median line, where a small interval was left.

On account of the free bleeding experienced in a former case, the patient was placed on a table with the head falling off. The teeth were then rapidly extracted—all the teeth of the upper jaw except two canines, which were firm—and the hypertrophied gums cut away with scissors down to the alveolus, the edge of which was removed by the bone-forceps. The bleeding was checked by the Paquelin and by plugging.

A Case of Rupture of the Spleen; Splenectomy; Death.—STRANG and WARE (*British Medical Journal*, May 1, 1897) report the following interesting case of a man, aged fifty-one years, who was caught between the shaft of one cart and the wheel of another.

When admitted he complained of pain in the abdomen, especially on the left side, and looked extremely ill. His face was pale, his lips blue, respirations rapid, and pulse very collapsing. There were no evidences of fractured ribs. The abdomen was almost motionless, and the left side was exceedingly tender; there was distinct dulness in the flank, which did not alter with change of position. The right flank was resonant except toward the extreme back. He passed urine which did not contain blood, and the bowels acted twice naturally. He seemed to be in great pain, and to alleviate this tincture of opium ℥x was given. A diagnosis of internal hemorrhage with probable rupture of the spleen was made.

The patient's condition became rapidly worse, and he consented to operation. Two and one half pints of normal salt solution were injected before the operation, and had a marked effect upon the pulse.

The opening of the abdomen was followed by a gush of blood; the liver was intact, but the spleen was found to be ruptured on its anterior border. There were large masses of clotted blood encountered, while the adhesions to the surrounding parietes were very dense, and it required considerable labor to free the spleen and remove it. The shock to the patient was very great, and he died before the wound was closed, in spite of strychnine and transfusions.

Wounds of the Air-passages.—Of twenty-five cases of suicidal wounds of the throat that came under the care of PLATT (*British Medical Journal*, May 8, 1897) ten involved injuries of the air-passages. The method of treatment to be employed he summarizes as follows:

1. Suicidal wounds of the throat should be treated by primary suture in all cases where the general condition of the patient permits.
2. Antiseptic precautions are most important.
3. If necessary, choloroform should be administered and is perfectly safe.
4. Divided muscles should be sutured, and in bringing together the edges of skin the inversion caused by the platysma muscle should be corrected.
5. The wound in the air-passage should be completely closed.
6. In many cases it is quite safe to dispense with the use of a tracheotomy tube. If a tube be deemed necessary, it should not be introduced through the suicidal wound in the air-passage, but through a fresh vertical cut at a lower level.
7. Silk is the best material for suturing the larynx or trachea.
8. During the after-treatment it is unnecessary, except in certain special cases, to feed by a tube or by the rectum.
9. If the above methods of treatment be adopted, not only will a very large proportion of even dangerous and extensive wounds of the air-passages recover, but the period of recovery will be greatly shortened. The patient will not be exposed to the same risks of secondary inflammatory complications, and he will be much less liable to the occurrence of permanent stenosis of the trachea or the formation of aërial fistulæ.

Intestinal Anastomosis by Means of a New Pattern of Decalcified Bone-ring.—BALL (*British Medical Journal*, April 24, 1897) describes a new pattern of decalcified bone-ring, by means of which end-to-end anastomosis can be rapidly and simply performed and yet perfect security obtained from the dangers which not infrequently follow the use of mechanical metal devices.

The following are the prominent indications which the author believes all such devices should fulfil and he believes his model secures:

1. Sufficient surface of each end of divided intestine should be opposed in order to obtain a firm band of adhesion.

2. No leakage should be possible along the line of union.

3. No great pressure should be made by the appliance used on the gut outside the junction which might endanger the vitality of the intestinal wall.

4. No undue narrowing of the lumen of the bowel should result from the operation.

5. The method selected should be capable of rapid application; this obviously becomes a question of great importance in cases of multiple resection.

6. In cases where the intestine above the obstruction is much dilated, while that below is contracted, the procedure should allow of as even and uniform adjustment as is possible with tubes of unequal calibre.

The introduction of the Murphy button marked an epoch in intestinal surgery, and its use has in the author's hands been attended with most excellent results; but so many cases have occurred with retention of the button or of extravasation when it is separating, either from insufficient adhesion together of the ends, or from sloughing due to tension of the gut over the instrument, that he has given up its use.

The decalcified ivory or bone-ring which he has devised differs in some essential points from those already in use. They are made in three sizes, which are sufficient for ordinary cases. The centre of each is perforated to allow of the passage of intestinal contents; the upper and lower ends are smoothly rounded off, while around the circumference a deep groove is turned, wide enough to allow involution of the cut edges of the intestine while keeping the peritoneal surfaces in tolerably close contact. A considerable undercutting of this groove provides accommodation for any surplus of involuted intestine. The chief feature in the application of this ring, however, is the fact that a continuous lacing suture connecting both portions of the intestines is passed loosely through the entire circumference of the divided ends before the ring is placed in position. The suture is passed from the outer to the inner aspect on one end and from the inner to the outer on the other. When the circuit is complete the free ends should be opposite each other. The loops are now separated at one point and the button slipped in, and then by gently pulling the suture, loop by loop, as you would the lace of a boot, it is gradually tightened into the groove of the ring, at the same time drawing in and involuting the cut edges of the intestine and bringing their peritoneal surfaces into contact. The opposing serous surfaces are now united by a series of sutures passed parallel to the line of union on alternate sides. The author believes this method can be as rapidly applied as any, and is free from all danger of leakage. Some of the buttons are made with different calibres on either end for the anastomosis of a larger into a smaller portion of the bowel.

Bacteriological Investigation of 312 Cases of Surgical Infection.—CURRY (*Boston Medical and Surgical Journal*, April 22, 1897) reports the following as the results of his investigations:

In 115 cases of abscess the streptococcus was found much more frequently than is usual. Pure infection occurred in 39 per cent., the staphylococcus aureus in 41 per cent., and the albus in about 10 per cent. He accounts for the large percentage by the fact that the cases were severe enough to be taken into the hospital wards, a greater percentage being found in the ward cases than in the out-patient department, where the cases were not severe enough to require admission.

The number of cases examined were found to contain the following forms: streptococcus pyogenes, 56; staphylococcus pyogenes aureus, 52 times; staphylococcus albus, 29 times; bacillus pyocyanus, 4 times; micrococcus lanceolatus, 2 times; bacillus diphtheriæ, 1 time; bacillus coli communis, 6 times; bacillus pyogenes fœtidus, 1 time; bacillus typhi abdominalis, 1 time; gonococcus, 1 time; amœba coli, 1 time; undetermined bacteria, 3 times.

Three cases of carbuncle had pure cultures, staphylococcus aureus.

Six cases of pustules, pure infections; four cases staphylococcus aureus; bacillus diphtheriæ, one; bacillus pyocyanus, one case.

In six cases of furunculosis the aureus occurred in four; the streptococcus in one; the pyocyanus in one.

In three cases of felons the aureus occurred pure.

In thirty-five cases of cellulitis the streptococcus was found in nineteen, the aureus in sixteen, the albus in seven, the pyocyanus in three, the micrococcus lanceolatus in two, the megatherium bacillus in one, and undetermined bacilli in two. The streptococcus produced the severest cases.

In two cases of erysipelas the streptococcus was found pure.

One case of dermatitis had streptococcus and albus.

Of six cases of bubo five were pure and one mixed—one was streptococcus, one aureus, and the albus in three; the mixed infection was albus and streptococcus.

One case of acute vesiculitis contained gonococci.

Two cases of osteomyelitis of the tibia and one case of acute periostitis each had the staphylococcus aureus.

In six cases of pyosalpinx the streptococcus occurred in one, the aureus in one, the micrococcus lanceolatus in one, and the gonococcus in three.

The cases due to the gonococcus and micrococcus lanceolatus made good and more rapid recoveries than the others. The streptococcus died of septicæmia.

Three cases of endometritis showed pure cultures of streptococcus.

One case of peritonitis showed the micrococcus lanceolatus and the colon bacillus.

In one case of gumma, where the skin was unbroken, cultures made from an incision showed aureus and albus, due probably to infection from the skin.

Two cases of conjunctivitis—one due to the albus and streptococcus; the other, severer, to diphtheria bacillus.

Ulcers of the leg showed mixed infection. Those containing the bacillus pyogenes fœtidus were all extremely sluggish.

Fifty cases of appendicitis were examined. In most of these cases there was abscess-formation. The cultures were taken immediately from the abscess-cavity upon the opening of the abdomen. Where there was no abscess the culture was taken from the stump of the appendix. There were twenty-eight cases in which mixed cultures were obtained, twenty in which pure cultures were found, and two showed no growth. Of the entire number, twelve patients (24 per cent.) died.

The streptococcus occurred in fifteen, the aureus in one, and the colon bacillus in forty-six.

Of the twelve fatal cases, the cultures taken at the time of operation showed seven pure colons, in three streptococcus and colon, in one colon and undetermined bacteria, and in one no growth occurred.

The study of these cases brings out the fact that the absence of the streptococcus from cultures taken at the time of operation where there has been perforation is of negative result. That it may be an etiological factor is shown by three cases quoted, in which at the time of the primary operation no streptococci were found, but subsequently they were obtained, once at the autopsy and twice at secondary operations. It is probable that in the presence of the large number of colon and other bacteria usually present in such cases the streptococcus could not grow.

The results of bacteriological investigations of appendicitis are far from being satisfactory. The study of these cases simply emphasizes the fact that the presence of the streptococcus is usually attended with symptoms of the severest type. There is a great variability in the streptococci found here as well as in other inflammations. They may cause but slight disturbance, but are far more liable to result in general peritonitis or septicæmia. It must be borne in mind that in cases of perforation and abscess-formation the absence from cultures of pyogenic cocci is of negative value.

Thirty cases of otitis media showed twenty-four pure and six mixed infections. The conclusion to be drawn from the study of the cases is that the pyogenic cocci, especially the streptococcus, produce the severest forms of inflammation of the middle ear. While the pneumococcus may produce very severe inflammation and involve the brain or its coverings, still, in the absence of pneumonia or other complications, the case tends to recover readily.

In eighteen cases of empyema the streptococcus occurred eight times, the pneumococcus nine times, the staphylococcus aureus once.

Direct Intra-abdominal Finger-compression of the Common Iliac Artery during Amputation at the Hip-joint.—McBURNEY (*Annals of Surgery*, May, 1897) describes a new method of compression to be employed in amputations at the hip-joint, which he has employed with very gratifying results in three cases.

It consists in an incision through the abdominal wall, such as he recommends in operating for the removal of the appendix, at a point about one and a half inches internal to the anterior superior spine of the ilium. Through this incision the index-finger of an assistant is passed, and readily reaches and compresses the common iliac artery.

The advantages are entire absence of blood-current beyond the point of

compression; the absence of bandages or other appliances from the operative field, making asepsis more easy, and that it can be applied to all cases even where the deeper tissues have to be removed.

Osteotomy of the Femur as a Treatment for Tuberculous Disease of the Hip in Early Stages.—TOBIN (*British Medical Journal*, April 24, 1897) summarizes his views of this subject as follows:

1. That no treatment better than rest, combined with constitutional remedies, is known for tuberculous disease of the hip.

2. That a large proportion of cases of this disease, especially those in which flexion has occurred, go on to suppuration, and that one of the chief causes is the difficulty of giving the joint rest.

3. That much of this difficulty lies in the fact that the position of greatest ease for the tuberculous hip-joint is one in which it is very awkward for the patient to carry the limb, very difficult for the surgeon to fix it, and therefore one in which the joint is constantly exposed to disturbance.

4. That it is possible, and in many cases advisable, to remove this difficulty by such an osteotomy of the femur as will allow the limb to be put straight, while the upper of the fragments retains "the natural position of rest."

5. That the operation sometimes does good by relieving tension in the bone.

6. That an osteotomy of the femur when done in this respect is not as formidable an undertaking as it is under ordinary circumstances, for it is not the division of the bone that is formidable in this operation, but the constrained position in splints and the long period of rest required for union. Now, since these latter incidents are a great gain for the tuberculous joint, they must be put to the credit of the operation, thus leaving very little to be entered on the debit side.

In commenting upon this article and the conclusions arrived at by the author, MARSH (*British Medical Journal*, May 8, 1897) says: In the first place Mr. Tobin holds that in early hip-disease the limb is flexed, abducted, and everted—the position of greatest ease—because the joint is distended with fluid. But is this the case? Large effusion in early tuberculous disease of those joints which are superficial enough to allow an investigation of this point—the hip, the knee, and the elbow—is seldom present, and I am not aware of any evidence to prove that the hip differs from other joints in this respect. The probability seems to be that the hip-joint, like other joints, is placed in the position of the greatest ease, not because it is distended with fluid, but in order that the swollen and sensitive soft structure may be placed as far as possible in a state of relaxation—one of the principal elements in physiological rest.

The joint does not necessarily contain fluid because it assumes the position in which most fluid would be accommodated.

The fact stated by Tobin that weight extension "does not act in the way it is represented as doing in the plates in hand-books of surgery," this author believes is not true, and that Tobin has missed the application of the weight, which should at first be applied in the line of the deformity, holding the limb in "the natural position of rest," and then gradually lowered to full extension as soon as the spasm of the muscles has been sufficiently overcome and the angle of flexion has been reduced.

In order to produce this result when the hip is the affected joint the leg must be extended on the thigh, and the whole limb raised till the spine is free from lordosis, and then supported in this position, the weight being made to act in the long axis of the limb. Then, as the weight gradually reduces the angle of flexion at the joint, the apparatus must be rearranged by reducing the height to which the limb is raised and by changing the position of the pulley so that traction is still maintained in the long axis of the limb.

The manner in which the joint tolerates weight-extension—an agency which one would think would, if the capsule were distended, add still further to the tense condition of the parts, and so produce pain—seems to indicate that distention cannot, as a matter of fact, be present. Moreover, if distention is really present, how is it that in numerous cases, within two or three weeks, the position of greatest ease, flexion, abduction, and eversion, can be exchanged for a position of full extension, the patient in the mean time remaining completely free from pain, notwithstanding that before extension was begun pain was considerable?

It seems reasonable to ask, seeing how readily extension can be substituted for the awkward position, as Mr. Tobin justly calls it, of greatest ease, and how well the change is tolerated, whether it is necessary to resort to such a proceeding as osteotomy? And, further, if the position of greatest ease is assumed merely to accommodate the fluid by which the joint is filled, might not the difficulty be surmounted by aseptic aspiration?

Gangrene from Carbolic Acid.—CZERNY (*Münch. med. Woch.*, April 20, 1897) says that, in spite of the repeated warnings which have been given on this subject, there is not a year passes in which he is not able to show to his classes cases of gangrene brought about by the use of carbolic acid solutions as dressings.

They are generally produced by the continued use of moist dressings containing the officinal 3 per cent. solution of carbolic acid and applied as an antiseptic dressing for minor wounds of the extremities. The anæsthetic action of the carbolic acid makes the patient unmindful of the insidious action of the drug, and he is much surprised to see the fingers whiten and finally turn black; a line of demarcation shows itself sharply, and amputation finally becomes necessary.

The author illustrates his subject by the report of three cases which were sent in from the country to his clinic. The danger of the solution, even a 1 per cent., is very great if the use is prolonged, and he advises that carbolic acid should never be used as a moist dressing. Other antiseptics are fully as efficient without this danger.

Typhoid Perforation Treated by Surgical Operation.—FINNEY (*Johns Hopkins Hospital Bulletin*, 1897, No. 74) finds the following facts in the study of the literature on this subject: In fifty-two cases there were seventeen recoveries; but if doubtful cases are eliminated we have thirteen recoveries from forty-seven cases, making a percentage of 27.65. In nineteen of the fatal cases autopsies were obtained.

The author derives from his study the following points: The best time for operation is apparently as soon as possible after the patient has recovered from the shock attending perforation. This is usually in a few hours. There is a remarkable uniformity in the condition of the peritoneum and viscera; intense congestion, much feculent pus and exudate, with distention of the bowel. As the ileum is the usual place of perforation, it should be examined first; a suture should be taken over any suspicious-looking patches, and the appendix should be removed if it be at all abnormal. If the inflammation does not involve the whole peritoneal surface, irrigation with the necessarily mild fluids might tend to spread the infection. In dealing with the perforation, to excise the edges takes too long, and healing usually takes place without. Should the wall be in such a condition as to make suture impossible, it would be better to pull out the loop of intestine and leave it until the patient has recovered from his fever. The line of suture must be determined by circumstances; the mattress suture is to be preferred. Drainage should always be employed.

Little dependence can be placed on the so-called characteristic symptoms of perforation; the marked leucocytosis which follows it is the most certain diagnostic sign. The white corpuscles increased from 3000 to 16,400 in the case reported by the author.

As regards incision, the median has obvious advantages in general, but if the abdominal muscles are too rigid, it is better made over the part most often affected. Autopsies have shown that healing was always well under way. Death usually occurred from septic absorption, but the records show some other complications, obstruction of the intestines, a second perforation, defective drainage, or an abscess. General peritonitis makes a case very serious, but with operation the chances are about 1 to 4.

The author prefers an oblique incision of six inches in the right iliac fossa. The cæcum is found and the appendix examined, and then the ileum is drawn out and examined, an assistant wiping it with warm sponges out of normal salt solution. They are covered with warm gauze, and the peritoneal cavity is wiped out. The intestines are then replaced, with the sutured coil next the abdominal wound and drainage leading down to it and packed about it. The abdominal wound is closed except for drainage. In cases of distention the bowels should be moved easily and thoroughly by calomel in broken doses, followed by salts, and if necessary a high turpentine and soapsuds enema. If stimulation is necessary, use hypodermics of strychnia, enemata of hot, black coffee, or transfusions of a quart or more of normal salt solution into the cellular tissues under the breast.

The author reports three cases with one recovery, and concludes that:

1. Of all the so-called signs of perforating typhoid ulcer most reliance is to be placed upon the development during the third or fourth week of an attack of typhoid fever of severe, continued abdominal pain, coupled with nausea and vomiting, and at the same time a marked increase in the number of white blood-corpuscles.

2. The surgical is the only rational treatment of perforating typhoid ulcer.

3. There is no contraindication to the operation, surgically speaking, save a moribund condition of the patient.

The Technique of Arthrotomy, Arthrectomy, and Resection of the Knee-joint.—With the purpose of permitting a free examination and exploration of this joint, while preserving to the greatest extent its function, NIEHAUS (*Centralblatt für Chirurgie*, 1897, No. 16) has employed for the past nine years the following method of operation, which he now publishes, feeling that he has had sufficient experience with the method to say what it is capable of producing and what its final results are. All the results have been satisfactory, both in children and adults, and where arthrotomy, arthrectomy, and resection have been performed.

The incision begins about three or four inches above the patella on the inner border of the rectus femoris tendon, passing through the vastus internus and about three-quarters of an inch from the patella, in a slight curve, to the inner border of the patella tendon at its intersection into the tuberosity of the tibia; here it sinks down to the bone. At the lower end of this incision a second is made at right angles to it, cutting below the insertion of the patella tendon. The patella tendon and its insertion into the tuberosity of the tibia are now severed by a broad chisel, which cuts from the inner side and turns outward a flap composed of the superficial tissues, the patella tendon at its insertion, and a thin lamina of bone into which it is inserted and comprising the tuberosity of the tibia. The whole length of the incision is now carried layer by layer through the capsule of the joint, so that when the knee is flexed the entire extensor apparatus, including the patella, its tendon, and the bony insertion into the tibia, can be turned outward, exposing the entire joint-surface to view, and making all parts accessible. By a further division of the lateral ligaments and the crucial ligaments in the intra-condyloid fossa, either with or without resection of the bony insertion, the entire posterior portion of the joint can be examined and curetted. After the necessary operation has been performed in the joint-surfaces, the severed portions are reunited by catgut sutures. The osteoplastic flap is fixed in position by a nail, which is removed after from ten to fourteen days.

This method of incision is especially useful in cases where there has been a dislocation of the semilunar cartilages, allowing of their suturing in their proper position.

The facility with which arthrectomy can be performed after this method is very great, as the entire joint-surface is made very accessible, and especially is this true of the synovial pouch beneath the tendon of the quadriceps muscle. The early erosions of tubercular disease are also readily dealt with.

In resections this method permits of a shortening of the extensor apparatus by resecting a portion of the patella.

The Results of Radical Operations for Hernia.—In speaking of the results which he has obtained by his method of operation for the radical cure of hernia, KOCHER (*Centralblatt für Chirurgie*, May 15, 1897) says that no method is applicable to all cases, but he believes that his method, which is not altogether dependent upon the aseptic healing of the wound or the permanency of the stitches, has marked advantages over some of the other methods, especially in elderly people and those having very large herniæ.

As the results of his method he quotes the results of 197 hernial operations

performed between 1894 and the middle of 1896. Of these, 103 cases of external inguinal hernia were operated upon by his method of lateral displacement. Perfect primary union—that is, where the drainage is removed at the end of twenty-four to forty-eight hours and the wound is completely healed—occurred in 91.3 per cent. of the cases, so that the patients left the hospital on the average of 10.7 days after operation. In 8.7 per cent. the healing was delayed, averaging 326 days. The larger the hernia the slower was the healing. Age also had a marked effect upon the results, patients over thirty-five years of age requring on the average four days more for complete healing.

The results of this operation, as performed by Beresowsky in twenty-three cases, are also recorded, and in combination with his own eighty-eight make 111 cases of which the actual condition at present is known.

In these cases there were four cases of return, or 3.6 per cent. Two of these cases occurred where double herniæ had been operated upon and two others had already been unsuccessfully operated upon by another method.

Twenty-six of the cured cases were operated upon previous to the middle of 1896, thirty-five cases in 1895, twenty-four in 1894, and finally twenty-three cases by Beresowsky in 1893.

During the period of three and one-half years that this method has been employed there have been no deaths. This, however, is not alone due to the method, but to other factors which influence the mortality of all operations. The cases were not all operated upon by the author: some were done by the assistants in his clinic.

OPHTHALMOLOGY.

UNDER THE CHARGE OF

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Discission, Primary and Secondary.—ELSCHNIG (Vienna), to obviate the dangers of discission, both in the primary operation upon the lens and also in secondary cataract upon the capsule (increased tension and insidious iridocyclitis in the former, purulent infection in the latter), which he attributes to faulty instruments and methods of operating, has devised a narrow knife, resembling that of Graefe, but only 8 mm. in length, and sharp on both edges.

This (or an ordinary small Graefe knife) is inserted into the sclera in the horizontal diameter, 1 mm. from the outer edge of the limbus, with its flat surface parallel to the iris. The point of the knife is carried to the lower margin of the pupil, where it is made to penetrate the lens. The capsule is divided

from below upward by depressing the handle, the fulcrum in all these lever movements being furnished by the point of entrance in the sclera. If the knife is withdrawn slowly, the anterior chamber is usually preserved.

For capsulotomy in secondary cataract, the knife is inserted in the cornea near the upper limbus with its blade at right angles to a tangent to the corneal margin. The point of the knife is carried to the lower edge of the pupil, where the capsule is penetrated and divided vertically from below upward.—*Wiener klin. Wochenschr.*, 1896, No. 33.

Test for Feigned Blindness of Both Eyes.—PRIESTLEY SMITH (Birmingham, England) describes the following application of a new test for malingering: "A prisoner, awaiting trial, awoke one morning blind in both eyes, so he said. The man declared himself to be quite dark in both eyes, and acted the part of a blind man fairly well, overdoing it a little. The pupils were already under atropine and could, therefore, give no evidence as to the light reflex. A lighted candle was placed before him in a dark room. He was not required to 'look' at the candle, being nominally blind, but the candle was placed about where he appeared to be looking. A prism was then placed before one eye, its base inward; instantly the eye moved outward. The prism was removed, and the eye moved inward. The man was told that his blindness would certainly disappear as quickly as it came, and he probably understood that the fraud would get him into more trouble if persevered in. His sight was soon restored." This test utilizes the involuntary tendency to avoid diplopia by "overcoming" the prism.—*British Medical Journal*, No. 1851.

Non-suppurative Inflammation of the Lachrymal Glands.—R. L. RANDOLPH (Baltimore) reports a case of this extremely rare affection, occurring in a negress, aged thirty-nine years, with a history of rheumatism; but no history of syphilis or other related disease. It began with pains down both sides of the face and over the eyebrows. In a month swelling appeared at the outer canthus of each eye, which continued to increase for another month, and had continued stationary for a month when the patient was seen. There was intense pain, never located in the glands, but down the sides of the face and across the forehead. A hard nodular immovable tumor, painful to pressure, extended from the nasal end to beyond the temporal end of the orbital rim, measuring about 15 mm. vertically at the widest part. The outer half of the upper lids nearly touched the lower. It was impossible to evert the lids. The patient was otherwise well. She was put upon mercuric chloride and potassium iodide, with applications of hot water to the tumors. In three weeks they had diminished one-half; and in six months from the beginning of their appearance only a slight enlargement of the left gland remained; and the patient had been for some weeks free from pain.

Hirschberg has called this affection mumps of the lachrymal gland; but it is not shown to be connected with specific parotitis, to which the term "mumps" is commonly applied.—*Archives of Ophthalmol.*, vol. xxvi., No 1.

Nitrite of Amyl for Atrophy of the Optic Nerve.—C. W. KOLLOCK (Charleston, S. C.) reports a case of optic atrophy, in which great improve-

ment of vision followed inhalation of amyl nitrite after other treatment had failed to produce any marked effect.

A man, aged sixty-three years, a user of tobacco constantly for many years, and a very moderate drinker of whiskey, otherwise in good health, came with vision reduced to 15/LXX in the right eye, and the field of vision concentrically contracted and the optic disk slightly hazy and swollen. He ceased the use of tobacco and whiskey; and was treated with potassium iodide to the limit of 60 grains a day, and strychnine to one-tenth of a grain three times a day. Vision continued slowly to diminish, and at the end of eleven weeks was barely 15/CC.

Nitrite of amyl was then tried. The inhalation of a few drops placed on absorbent cotton produced flushing of the face, enlargement of the vessels on the optic disk, and a marked improvement in vision, a little of which remained two days later, when the inhalation was repeated. The inhalations were continued daily until the heart-symptoms became so disagreeable that it was thought best to discontinue them. Vision then remained permanently at 15/XXX. The concentric narrowing of the field remained without material change. The involvement of one eye and the absence of central scotoma seemed to indicate that the trouble was not due to tobacco or alcohol.—*Ophthalmic Record*, May, 1897.

Removal of the Crystalline Lens in High Myopia.—VON HIPPEL (Halle) reports the removal of the lens for high myopia in 114 eyes during the past four years, a majority of the cases remaining under observation.

He recognizes two forms of myopia: The one, due to abnormal growth of the eyeball through muscular compression during the period of development, leads to but low or medium degrees of short sight, usually becomes stationary when bodily development is complete, and is rarely accompanied by pathological changes in the interior of the eye. The other is congenital, or begins early, progresses continuously, soon reaches a high degree, and leads to disease of the choroid, retina, vitreous, and to bulging of the globe as a whole. The former variety may be kept within bounds by hygienic measures, and the resulting impairment of vision can be corrected by lenses. In the latter we have to do with a serious disease of the eye; correcting lenses cannot be worn on account of their diminishing and distorting (prismatic) effects. Removal of the crystalline lens is the only resource for this class.

Discission, with subsequent evacuation of the lens masses, is the method best adapted for this purpose. Glaucomatous symptoms occurred in but four of Von Hippel's cases. The time required for the lens to become opaque after discission varied considerably in different persons, and even in the two eyes of the same individual, but was entirely independent of the age. Three days and twenty days were the limits between discission and extraction. The latter was usually practised from the fourth to the eighth day. Both eyes were operated upon, as a rule. Iridectomy was done several times. In most of the cases the degree of myopia lay between fourteen and twenty-five dioptres. Choroidal disease did not prove a counter-indication. Forty-six cases showed pronounced changes of this nature. Capsulotomy was done in almost every case as the final act.

Like other operators, Von Hippel also noted great improvement in the

visual acuity, generally after the lapse of many months. The reporter believes that the further progress of myopia is permanently arrested, but that the operation does not afford positive security against further involvement of the choroid, nor subsequent detachment of the retina, although the latter is not to be ascribed directly to the operation, but is dependent on the nature of the malady.

Of the 114 eyes, astigmatism is noted before the operation in but two (of the same individual). After operation its presence is recorded in thirty-five instances.—*Deutsche medicin. Wochenschr.*, No. 25, 1897.

Retinal Hemorrhage after Middle Age, and its Bearing on the Duration of Life.—HASKET DERBY (Boston) finds this symptom is one of great importance, and the prognosis serious. The detection of the disease is easy for one who has a moderate acquaintance with the examination of the interior of the eye. The cases themselves are far from infrequent; and the warning given by their occurrence may be practically utilized for the regulation of important business interests. Life itself may often be prolonged by abstinence from exhausting labor, by appropriate relaxation, and by following a suitable regimen.

Of about ninety cases of the kind he had seen, Derby succeeded in tracing the subsequent course of events in thirty-one persons between the ages of forty-three and eighty-three. Twenty-five of these died after brief illnesses, some, indeed, with the utmost suddenness. Eleven of this number died of heart disease, fourteen of apoplexy. Five were at last accounts living, their average age when first seen being fifty-four, and their cases followed up on an average of thirteen years. One patient, a man of eighty-three, died of an affection of the bladder six years after he came for retinal hemorrhage.—*Paper read before the Massachusetts Medical Society*, 1897.

Treatment of Sympathetic Ophthalmia by the Extract of the Ciliary Body of the Ox.—LOUIS DOR (Lyons) has been led by theoretic considerations, including the idea that sympathetic inflammation of the eye results from an altered composition of the intraocular fluids, to try the effect of the instillation into the conjunctival sac of an organic extract prepared by macerating the ciliary body of the eye of the ox. He reports the case of a man who was attacked with sympathetic ophthalmia one year before, and in whom removal of the exciting eye, and subsequent active treatment, including mercurial inunctions and injections, and iridectomy, had failed to prevent blindness, with pain and hyperæmia of the eyeball. The regular instillation of the extract of the ciliary body was followed by great improvement in all his symptoms, his improved vision allowing him once more to find his way alone.

In another case of less severe sympathetic disease the improvement under the same treatment was equally noticeable.—*Gaz. Hebdomad.*, Ann. 44, No. 50.

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

UNDER THE CHARGE OF

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Operation for Stricture of the Larynx by Grafting.—At the session of the Imperial-Royal Society of Physicians of Vienna, held May 14th (*Medical News*, July 10, 1897) GERSUNY mentioned two instances in which he attempted to apply Thiersch grafts to the surface of a cavity. In the first case, diphtheria had produced an almost complete cicatricial stenosis of the larynx in a child one year and nine months of age, and breathing was only possible through a canula in the trachea. Gersuny divided the larynx, excised the cicatricial mass, and covered the circular denuded area which was left with a graft taken from the thigh, and in order to keep it in place the cavity was tamponed and the skin sewed together over it. In eight days the tampon was removed and the flap was nicely united. The canula was kept in position for some time, and the larynx was dilated with bougies and tubes, as there was some tendency toward contraction. The canula was at last dispensed with and the child breathed normally.

Hemiatrophy of the Tongue.—DR. HAROLD N. MOYER, of Chicago, describes and depicts (*New York Medical Journal*, 1897, No. 975) a case in a young man, twenty-five years of age, who on November 22, 1892, had received a wound of the left cheek from a 32-calibre revolver, the bullet from which was supposed to have been imbedded "in the bone."

Diphtheria.—JESSEN (*Centralbl. für innere Med.*, May 15, 1897; *Medical News*, 1897, No. 1282) reports a case of diphtheria in a girl, nineteen years of age, in whom clinical evidence of the disease persisted for more than four months, despite energetic treatment, comprising the injections of Behring's serum and the topical use of lactic acid.

The Cure of Singers' Nodules.—At the late meeting of the Laryngological, Rhinological, and Otological Society, DR. HOLBROOK CURTIS, of New York, read a paper on this subject (*Medical News*, 1897, No. 1281). He stated that he was able to cure these nodules by a series of respiratory and phonatory exercises, which at the same time, increases the size of the chest at the apices of the lung, and improves the quality of the voice.

Surgical Treatment of Lupus of the Larynx.—DRS. A. GOUGUENHEIM and A. GUINARD (*Annales des Maladies de l'Oreille, du Larynx du Nez et du Pharynx*, August, 1897) report a case of secondary lupus of the larynx in a child ten years of age which they claim to have cured by laryngo-fissure, ablation of the epiglottis, curettage, and thermo-cauterization of the entire mucous membrane of the larynx.

[The cure, however, is but three months old. It is to be hoped that it will be permanent, but, as a matter of fact, it is well known that lupus is liable to reappear no matter what measures are taken for its destruction. The authors refer to a case of lupus of the larynx reported by Dr. Brondgeest in 1896 to the Congress of Internal Medicine at Munich, which he had similarly treated by subhyodine pharyngotomy, and subsequently, after a recurrence, by laryngo-fissure, since which it had remained cured for six years. This is the only operative case of the kind which the writers of the paper found on record.]

Sarcoma of the Larynx.—Dr. T. H. Halstead, of Syracuse, N. Y., reported (*Medical News*, 1897, No. 1281) a case of sarcoma in a man, fifty-seven years of age, from whose larynx he had with the snare removed a round-celled sarcoma on June 17, 1896. One month later the growth was even larger than at the first operation. On January 29, 1897, tracheotomy was performed to relieve severe dyspnœa, and one week later the growth protruded at the opening of the trachea, and in another week had reached the base of the tongue. The patient died on April 26th. There had been occasional slight hemorrhage, and profuse hemorrhage on one or two occasions.

Sarcoma of the Naso-pharynx in an Infant.—Dr. Halstead likewise reported the unusual case of a sarcoma in a female infant two years of age. The right side of the nose was occluded by a yellowish-white growth, while the soft palate was pushed forward by another mass. Tracheotomy was performed for the child's immediate relief, but it died shortly afterward.

Three Cases of Laryngectomy.—At the last meeting of the Laryngological, Rhinological, and Otological Society (*Medical News*, 1897, No. 1281) Dr. Charles W. Richardson, of Washington, D. C., reported an unsuccessful case of laryngectomy in a male subject, for malignant disease of the larynx, acute œdema of the lungs having occurred suddenly on the evening of the second day after the operation.

The growth was found to be far more extensive than had been supposed, as it filled the whole interior of the larynx and extended into the trachea.

Dr. James Kerr, of Washington, also reported a case of laryngectomy for malignant disease, in a female subject. The patient succumbed at the end of the first week from gradual failure of strength. The growth was a medullary carcinoma originating in some of the glands of the mucous membrane of the larynx.

In both instances tracheotomy had been performed. In the first instance one week, and in the second instance one month before radical operation.

Dr. M. R. Ward, of Pittsburg, reported a case of laryngectomy in a girl, seventeen years of age, in whom a papilloma of the larynx had recurred as an epithelioma, the specimen having been found to be a mixed epithelial growth —an adeno-epithelioma. The patient died of exhaustion, a little over seven months after the operation, and almost three years after the disease had been first recognized.

[The continuousness of neoplasia in this instance would lead to the inference that the diagnosis of papilloma in the first instance had been defective, even though based upon histologic examination of the excised growth.]

OBSTETRICS.

UNDER THE CHARGE OF

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The Pathogenesis of Eclampsia.—In the *Monatschrift für Geburtshülfe und Gynäkologie*, 1897, Band v. Heft 5, VOLHARD, of Halle, reviews in a very complete way the recent experiments which have seemed to demonstrate that the blood-serum of eclamptics is more toxic than normal. He concludes that this cannot be proven; but that, on the contrary, the blood-serum of eclamptics produces, when injected into animals, the same symptoms caused by normal serum.

Both blood-serums produce dissolution of blood-corpuscles and hæmoglobinuria; both affect most powerfully when injected continuously.

VOLHARD considers the very conflicting results of investigation concerning the poison producing eclampsia at length. He describes experiments upon animals, which strengthen his belief that a ferment closely allied to fibrin ferment produces eclampsia and also thrombosis. He inclines to agree with those who find the source of this in disintegration of the white cells.

[This able paper illustrates well the complexity of the problem of eclampsia. The practical deduction, however, is clear and positive; the nutrition and excretion of the pregnant woman are processes dependent upon many factors not thoroughly known. The balance of health in pregnancy is readily and often disturbed. Pregnant patients demand close and thorough study, with especial attention to excretion. The nervous system gives clinical information of great value in these cases, and usually warns against approaching danger. No one excretion is a reliable index of a patient's condition, but all excretory processes demand attention.—ED.]

The Maternal Risk in Twin Pregnancy.—STEPHENSON, of Aberdeen, in his "Studies in Practical Midwifery" (*Scottish Medical and Surgical Journal*, No. 7, 1897), discusses the subject of twin pregnancy, and especially the maternal risks.

In general, the maternal mortality is more than double that of single pregnancy. This arises with some patients from convulsions—one in 81 cases against one in 363 normal cases.

Hemorrhage is five times more frequent in twin than single births, especially in the third stage of labor. The placenta is adherent twice as often in twin as in single births. Retention of the placenta necessitating interference was six times more frequent in twin than single births. Adhesion of the placenta was present in more than half the cases. STEPHENSON urges very sensibly that twin labor is an incomplete labor after the first child is born; the womb

is exposed to incomplete retraction, and hence to hemorrhage; no time should be lost in completing the delivery, preferably by version, thus avoiding risks of hemorrhage.

Between 6 and 7 per cent. less cases of twin labor end in a given time than with single births. As a result, care must be taken to avoid the dangers which delayed labor occasion.

In general, twin labor demands careful external examination of the patient to determine the presence of the second child. Unless the second follows quickly after the first twin, version should be done and the second twin delivered. All possible precaution should be taken to avoid failure of uterine retraction and hemorrhage.

Cæsarean Section.—In the *Boston Medical and Surgical Journal*, July 8, 1897, REYNOLDS reports the case of a multipara, with justo-minor pelvis, who had lost one child from difficult forceps delivery and had been delivered at eight months of a living child by a difficult forceps extraction. The operation was elective before labor began. The womb was turned out of the abdomen during delivery and the uterine wall closed with ten silk sutures, with six sero-serous sutures of fine silk. Gauze was passed through the cervix into the vagina. Mother and child made a good recovery.

Culture-diagnosis and Serum-treatment in Puerperal Infection.—In the *Edinburgh Medical Journal*, August, 1897, HAULTAIN reports three cases of puerperal infection in which diagnosis of the sort of infection was made by cultures, and serum chosen for treatment with reference to the variety of the infective germ.

Case I. was a primipara who was delivered with forceps. After tardy recovery she had fever, with pain and swelling in right thigh, on the twenty-sixth day. On the thirty-second day a culture was obtained from the cervical canal and typical diphtheritic bacilli obtained. Three injections of antitoxin, 10 c.c. each, with cleansing the uterus with bichloride, were followed by recovery.

Case II. was a primipara confined in a room over a foul stable. Well-marked general sepsis developed. Cultures from the cervix gave streptococci and bacilli coli communes.

Before death the blood showed pure growth of bacillus coli communis. The abdomen was swollen, the legs and abdomen had erythematous patches, the patient was drowsy, and developed joint and parotid abscess. Injections of antistreptococcus serum were without effect.

Case III. was a multipara who had a streptococcus infection, with abundant germs in the discharge. Antistreptococcus serum was used by injection, and the womb was douched and packed in gauze soaked in serum. Repeated intrauterine douches were given, streptococci continuing in the discharge. The patient made a gradual recovery.

HAULTAIN urges the further trial of serum-treatment based on culture-diagnosis. It must be used early and continued after grave symptoms have ceased. Its value is less in mixed than in pure infection. Local antiseptic treatment and the injection of nuclein should accompany it.

[The Editor adds his agreement to the views expressed above. We have

had occasion to diagnosticate, by cultures and clinical signs, bacillus coli communis with streptococcus infection in a case of symphysiotomy and one of cœlio-hysterectomy. Our experience with serum-treatment fully coincides with Haultain, that early and repeated use of antistreptococcus serum is needed to obtain benefit from it. The peculiar virulence of bacillus coli communis and mixed infection is one of the most important and interesting phenomena in obstetric pathology.]

The Treatment of Bleeding in Pregnancy and Labor.—In the *Scottish Medical and Surgical Journal*, No. 6, 1897, BARBOUR calls attention, in an interesting clinical lecture, to the sharp distinction to be drawn in practice between cases of bleeding requiring vaginal tamponing and those in which this treatment would be most harmful, or fatal, in result.

In the first class he describes cases of abortion without much dilatation, placenta prævia in the early stages of labor, and torn cervix without relaxed uterus. In the second division were incomplete abortion where dilatation and emptying of the uterus was necessary; accidental bleeding from a fall, and post-partum bleeding from uterine relaxation.

He calls attention to the fact that in early pregnancy bleeding takes place from the whole uterine cavity; in the later months from the placental site only, as a rule. Hence the womb must be entirely clean and empty in early pregnancy for bleeding to stop, and in later pregnancy pressure must in some manner be exercised on the placental site. This is secured by uterine retraction, by gauze pressure, and the astringent action of hot water (120° F.). Ergotin is useful for continued action upon the uterine muscle. The formation of thrombi is considered most valuable, and in placenta prævia plugging the cervix with the fœtal breech and limbs. In concealed hemorrhage the membranes must be ruptured.

[In addition to the excellent treatment which Barbour advises, we value highly strychnine given by hypodermic injection, to secure uterine retraction. In torn cervix we suture the rent, when extensive, with chromicised catgut, with excellent results. We have abandoned the use of gauze packing in cervical tear and bleeding in all cases where the patient's condition justifies the manipulation required in suture.—ED.]

Enucleation, from the Pregnant Uterus, of Interstitial Myoma.—BIERMER (*Centralblatt für Gynäkologie*, No. 20, 1897) reports the case of a multipara who, in the fourth month of pregnancy, suffered so severely from pressure on the bladder that operation was required. On section a myoma was found in the anterior uterine wall. It was grasped by forceps and enucleated, care being taken not to enter the endometrium. The tumor was three and one-half inches by two and one-third inches, and its removal left a considerable area for suture. This was closed by five buried catgut stitches, and over this the uterine peritoneum carefully united.

The patient made a good recovery. Life was felt soon after operation. The pregnancy continued until the seventh month, when a macerated seven months' fœtus was expelled spontaneously.

No cause for fœtal death could be found. Pregnancy was certainly not interrupted by the operation.

A New Incision in Cæsarean Section.—FRITSCH (*Centralblatt für Gynäkologie*, No. 20, 1897) calls attention to the advantages of a transverse cut across the uterus at the fundus, in cœlio-hysterotomy. In a recent operation he made the abdominal incision so that the navel was in the centre of the cut. Hernia is less common after a high incision. The placenta was quickly and easily extracted without bleeding; the child's legs were readily grasped; the womb quickly contracted, seven sutures closing it completely. The incision was about 8 cm. (3⅛ inches) long. No blood or fluid escaped into the abdomen. A rapid recovery followed.

Fritsch urges that in operating upon the uterus the anatomy of the vessels is such that bleeding is best controlled when the uterus is incised transversely to its long axis, at the fundus. At the level of the tubes and ovaries the incision should be longitudinal to secure the vessels most readily.

GYNECOLOGY.

UNDER THE CHARGE OF

HENRY C. COE, M.D., M.R.C.S.,
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Administration of Ovarian Tissue.—BODEN (*Deutsche med. Wochenschrift*, No. 45, 1896) reports two cases of climacteric disturbances, one following castration, the other being physiological. Two, later four, tablets of Merck's ovarian tissue were administered daily, the result being entire relief from the unpleasant symptoms.

In a third case, one of epilepsy in a young girl, appearing only at the beginning of menstruation, the attacks were controlled by giving eight tablets daily, but recurred when the dose was diminished.

JACOBS (*Polyclinique*, No. 23, 1896) prefers a preparation in wine, the daily dosage being five drachms, containing three grains of ovarian extract. His results were as follows: 1. Climacteric disturbances (including vesical irritation) were either relieved or ceased entirely, whether physiological or following castration; 2. The results were most prompt in patients suffering from chlorosis and dysmenorrhœa; 3. The influence of the extract upon reflex psychical disturbances attending pelvic affections was marked; 4. In all cases a rapid and permanent improvement in the patient's general condition was noted, digestive troubles disappearing, and the appetite being improved; 5. Climacteric hemorrhages resulting from neoplasms quickly ceased; 6. The therapeutic action of the remedy upon the general nervous system was early observed.

Technique of Abdominal Hysterectomy.—LANDAU (*Centralblatt für Gynäkologie*, No. 23, 1897) has modified Doyen's method as follows: With the patient in Trendelenburg's posture, the tumor is delivered, drawn for-

cibly upward and forward, and the posterior vaginal fornix is opened. The posterior lip of the cervix is seized with a volsella, drawn upward through the incision, and the vaginal attachment is severed all the way around. It is then easy to separate the bladder from below. The uterus is now held by the broad ligaments alone. An assistant grasps one ligament between his thumb and fingers while the operator divides it. Pressure is relaxed sufficiently to allow the uterine artery to spurt, when it is isolated with forceps and ligated, the vein being also secured if necessary. The ovarian artery and distal end of the tube are then tied separately. The same procedure is adopted on the opposite side, and the uterus is removed, the peritoneal edges being united with a continuous catgut suture. The vaginal wound may be closed, if desired, with the same or with a separate suture. No drainage is employed.

The writer believes that it is better to leave the adnexa if normal, as the operation is thus simplified. When it is necessary to remove them on account of disease, the broad ligament is first incised below the tube, or the tube and ovary are excised and the ovarian artery is tied after the uterine has been secured.

The writer regards this as the ideal operation in cases in which Douglas's pouch and the broad ligaments are free and accessible. If the mass is retrocervical or intraligamentous, it is enucleated sufficiently to expose the posterior vaginal fornix, when the same technique is employed.

The advantage claimed is that no stumps are left and mass-ligatures are not used, so that subsequent adhesions are less likely to form, and the danger of secondary hemorrhage is diminished.

Destruction of the Endometrium by Hot Injections.—SCHICK (*Ibid.*) discusses the value of various methods of removing the diseased endometrium. The ideal method, he believes, should fulfil the following requirements: 1. Absolute asepsis; 2. Removal of the entire tissues down to the muscular layer; 3. Thorough removal, so that no portion of the mucosa may remain; 4. Limitation of the destructive action, so that extensive injury to the deeper parts may be avoided.

None of the procedures usually adopted satisfies these requirements. In curettement the diseased mucosa is rarely completely removed, and then only in puerperal cases. Chemical agents, especially chloride of zinc, may cause destruction of the subjacent muscular tissue in some spots, while in others islands of mucous membrane remain untouched. Electrolysis produces the same result as caustics, though less effectively.

The writer, after various experiments, came to the conclusion that the effect of hot water was most satisfactory. Before employing it in the living subject he studied its action upon the endometrium in freshly extirpated uteri. Water at a temperature of 80° to 85° C. was allowed to flow through an intrauterine catheter for periods ranging from thirty seconds to two minutes. After half a minute the entire mucosa was seen to be covered with a thin whitish layer, which penetrated more deeply according to the length of exposure to the action of the hot water. As practised on the living subject the writer's technique was as follows: The cervical canal is dilated with lamina tents until it admits the little finger. The patient is anæsthe-

tized, the genitals rendered thoroughly aseptic and the cervix is seized and drawn down with a volsella. To a kettle of water, heated by a Bunsen burner, is attached a rubber tube on which is fitted a Bozeman-Fritsch double-current catheter. A second tube communicates with a receptacle filled with ice-water, which is allowed to flow into the vagina before and during the operation. The hot water is now allowed to enter the uterus while the end of the catheter is constantly turned in different directions in order that the entire endometrium may be affected. As the hot water escapes from the os it mingles with the cold, and thus does not burn the vagina. Since the action of the heat is more intense upon living than upon dead tissues, the writer adds the caution that thirty seconds should be the limit of exposure. The degree of reaction is noted by the marked contraction of the uterus.

Several successful cases of menorrhagia are reported (including two cases of abortion and one of fibromyoma), in none of which were any unpleasant effects observed.

The writer calls attention to the different action of steam and hot water. The former has been introduced into the uterus for the purpose of controlling hemorrhage, while the effect of the latter is to destroy the entire lining membrane of the organ. While the writer has seen no failure of the mucosa to become regenerated when it is exposed to the action of the heat for half a minute, he thinks it wiser, until the subject has been more fully studied, to employ it only in the case of women with fibroids and those who are near the climacteric, in whom the preservation of the function of menstruation would be less important.

Anatomy of the Round Ligaments.—BEUTTNER (*Monatschrift für Geb. und Gynäkologie*. Band v., Heft. 3) found from his studies in the cadaver that it was difficult to find the ligaments after they left the external ring. He advises that they be sought in the canal or at the internal ring. The average thickness of the ligament is 2.3 mm. There is considerable variation in the distance from Poupart's ligament at which they are found, as well as in the extent to which the cord can be drawn out (one and one-half to four inches).

In one case the ligament was split up into separate fibres in the broad ligament. It was found that by fixing the shortened cords near the symphysis the uterus was anteverted further, while by attaching them near the anterior spine more elevation of the organ was obtained, hence the latter method is preferable. On distending the bladder the uterus is seen to be in normal anteflexion when thus suspended. If the ligaments are attached near the symphysis diverticula of the bladder are formed when the organ is distended, which might readily give rise to disturbances in the living subject.

Primary Sterility.—VEDELER (*Norsk. Mag. for Lägevid; Centralbatt für Gynäkologie*, No. 26, 1897) investigated the causes of sterility in 310 women who had been married for upward of a year without becoming pregnant, the average period being three years. Fifty husbands were examined, thirty-eight of whom had had gonorrhœa and thirty-four had certainly infected their wives. In 64 per cent. of the women evidences of pelvic inflammatory processes were discovered, which were doubtless of gonorrhœal origin.

The Influence of Bicycling on the Kidneys.—MÜLLER (*Münchener med. Wochenschrift*, No. 48, 1896) mentions some interesting facts noted by him, which are apropos in connection with the general recommendation of bicycling by gynecologists. Analyses of the urine of twelve subjects were made. Albumin was found in 72 per cent., while 58 per cent. contained hyalin casts and renal epithelium. This supports the theory of Leube, that excessive muscular exertion may cause albuminuria ("functional") in healthy subjects, which is distinguished by its brief duration and the absence of any evidences of organic trouble. Since in Leube's experiments (with soldiers on the march) no casts were found with the albumin, the writer infers that their presence in the urine of bicyclists may be due to the fact that the exertion which the latter undergo is more severe. There seems to be no ground for apprehension, in his opinion, that chronic nephritis may develop in consequence of repeated and prolonged bicycling.

Histogenesis of Ovarian Dermoids.—PFANNENSTIEL (*Ibid.*) concludes a paper on this subject with an explanation of the mode of origin of mixed dermoids. He does not believe with Waldeyer that dermoids are really adenomata of the ovary, but affirms that these mixed tumors are due to simultaneous irritation of histologically different portions of the parenchyma, and that each portion "responds to this irritation in its peculiar way."

It is noteworthy that dermoids are usually found in combination with pseudo-mucin cysts, which, in all probability develop from the follicular epithelium, the combination with cysts lined with ciliated epithelium (which spring from the germ-epithelium, being exceedingly rare.

This mode of origin of dermoids may then be explained as due to the same impulse which incites the epithelium of the ovum to develop a dermoid, while at the same time from the follicular epithelium develops a pseudo-mucin or simple serous cyst.

Factors Influencing the Firmness of the Abdominal Cicatrix.—ABEL (*Ibid.*), after hearing from all but five out of 665 cases of abdominal section (a large proportion of whom he examined personally) operated upon between 1887 and 1897, with especial reference to the condition of the cicatrix, found that two factors were concerned in its permanent integrity, exactness of coaptation and suppuration of the wound. The average percentage of herniæ was about two and one-half. The best results were obtained when the fascia was united separately. Wound-suppuration was the most obvious cause of hernia, especially when the fascial edges were not sutured separately.

The percentage of herniæ following suppuration varied from forty when suppuration lasted two weeks, to eighty when it continued for upward of four weeks. Other causes were active, such as excessive adipose, too early return to hard labor, abandoning the use of the bandage too soon, and pregnancy.

In tracing his cases the writer notes the interesting fact that among sixty-one patients who died since their return home, nine succumbed to intestinal obstruction.

Colloid Cystoma of the Abdominal Wall following Tapping.—SAENGER (*Centralblatt für Gynäkologie*, No. 25, 1897) reports a case of multilocular cys-

toma of the right ovary, which was tapped through the abdominal wall, a fistula remaining through which fluid continued to escape for several days. Three months later ovariotomy was performed, an adherent suppurating cyst being removed. At the time of the operation slight induration was noted at the site of the puncture. A year later the patient returned with a fistulous opening at this point, discharging offensive pus. The operation for its closure showed that a colloid growth had developed, which communicated with the interior of the gut, so that intestinal sutures were necessary. The patient made a good recovery. The writer calls attenton to the fact that while implantation metastases are common in connection with malignant ovarian cysts, and cases have been reported following the removal of colloid growths, this is the only one to his knowledge in which all the layers of the abdominal wall have been involved and the disease has extended through the intestine. It possesses importance in its bearing upon the mode of implantation of such neoplasms.

Freund's Operation.—KÜSTNER (*Ibid.*) reports sixteen cases with four deaths. The indications were: Unusual size of the uterus (especially complication with pregnancy or fibroids), narrowness of the vagina, marked friability of the cancerous cervix, and firm adhesions, which in one instance necessitated resection of the intestine, and in another of the bladder. This method can, of course, not be substituted for the vaginal, on account of the higher mortality, Freund's being being 31.6 per cent., while the best statistics (those of Zweifel and Redner), based on much larger series of cases, was 25 per cent. The dangers are due not to abdominal extirpation of the uterus *per se*, *i. e.*, to shock, hemorrhage, or ligation of the ureter, as originally pointed out by Freund, nor to the greater technical difficulties of the method, but to the risk of sepsis, especially in cancer of the uterine body, where infection is often present before operation, as shown by the existing fever. The treatment of the wound is, therefore, of vital importance. The writer had two deaths out of five cases in which the peritoneal cavity was closed without drainage, and two out of four in which vaginal drainage was employed. In seven, in which the Mikulicz tampon was used, however, there were no deaths, hence the inference that the latter is more effectual in preventing the escape of pathogenic micro-organisms into the general cavity.

Extirpation of the Cancerous Uterus with the Cautery.—MACKENRODT (*Ibid.*) emphasizes the difference in technique between vaginal extirpation of the cancerous and non-cancerous uterus. In the latter case the operation is simplified by the fact that the surgeon can keep close to the organ, thereby diminishing the amount of hemorharge and running less risk of injuring the surrounding tissues. In operating for malignant disease, however, the incision through the vaginal fornix must be as remote as possible from the cancerous cervix, while the risk of secondary infection is great. During the past two years and a half the writer has used the cautery exclusively for separating the uterine attachments, with the result that during that period he has not observed a single case of recurrence in the cicatrix, and only one patient has died, from metastasis in the stomach. He at first used the Paquelin, but has abandoned it for the acutal cautery, which he has employed in thirty cases.

In order to avoid delay he has three cautery irons, which can be raised to a glowing heat in a minute by means of a gas-burner fitted with a blow-pipe, so that as fast as one iron cools another is ready. There is some danger of injuring surrounding parts, but with practice this can be certainly avoided. While the immediate mortality is somewhat higher than by other methods—it is far less than that of abdominal extirpation—the results as regards freedom from recurrence are such that he confidently believes that "igni-extirpation" will be the operation of the future for the removal of cancerous growths in all localities, even in the rectum.

The Stump After Salpingectomy.—RIES (*Ibid.*), in three secondary operations upon patients whose tubes had been removed at previous operations, found the stump of the tube open in each instance at the distal end, and lined with the usual cylindrical epithelium. This would seem to explain cases of secondary infection through the uterus, either soon after operation, or later, as well as the few reported cases of pregnancy after double salpingectomy. This fact might also serve as an argument for removing the uterus with the tubes in infectious cases.

Intrauterine Injections.—DÖDERLEIN (*Ibid.*) reports the results of experimental injections of methyl-violet, iodine, and chloride of zinc solutions in six cases in which he was about to perform total extirpation of the uterus. The usual cautions were employed—thorough dilatation of the cervical canal, moderate force, and the maintenance of a return current, yet in all but one instance (a case of endometritis fungosa) the fluid entered the tubes and was forced into the peritoneal cavity. The writer infers that the result of these experiments throws considerable light upon the question of tubal menstruation and the extension of gonorrhœal infection. It is unnecessary, he says, to add that the fact of this perviousness of the tubes fluids should lead to the greatest care in regard to intrauterine therapeusis.

Elastic Tissue in the Fallopian Tubes.—BUCHSTAB (*Centralblatt für Gynäkologie*, No. 28, 1897), from a careful study of 102 specimens of normal and diseased tubes removed from children and women, arrives at the following conclusions: 1. Until the end of the first year elastic tissue is found only in the peritoneal and subserous coats of the tube around the vessels; 2. Between the ages of three and seven this tissue becomes thicker, especially in the neighborhood of the vessels, and fibres are seen in the muscular layers. A few delicate fibres appear in the submucosa; 3. In the tubes of girls between twelve and thirteen years of age, this tissue is well developed, the vessels being surrounded by a dense network. The muscularis mucosæ contains a small quantity, but it is absent from the mucosa; 4. Between fourteen and fifteen there is a great increase in the amount of elastic tissue throughout the different layers, and for the first time delicate fibres are observed in the mucosa; 5. In women between twenty-one and forty-five this tissue reaches its full development, while after the climacteric it begins to atrophy, reaching its minimum at the age of fifty-five years; 6. In the senile tube elastic tissue is found only in the serosa and superficial muscular layer; 7. There is a notable increase in hydro- and pyosalpinx, so that in some specimens it formed

actual layers, while in tubal gestation it is absent or slightly developed at the site of the sac, whether the latter has ruptured or not.

Acute Decubitus.—SEGOND (*Revue de Gynécologie et de Chir. Abdom.*, 1897, No. 1,) reports six cases of decubitus in 542 cases of vaginal hysterectomy. In every instance the operation was performed for pelvic inflammatory conditions in young subjects. An extensive erythematous blush was first noted, on the fifth day in four cases, and on the third day in two. The temperature at the same time rose and the general condition of the patient was bad. Gangrene later developed, which exposed the bone, but no death occurred. The writer regards decubitus as a trophic disturbance due to reflex irritation and the inclusion of nerves in the clamps. It might also have been due to mechanical irritation of the pelvic nerves. The severity of the operation and prolonged pressure of the parts had nothing to do with the complication.

PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF

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Bacterial Examinations of the Blood.—During life bacterial examinations of the blood are undertaken with a twofold purpose, either to assist the diagnosis by the detection of the specific germ of the disease, or to throw light upon the pathology of the disease in so far as the discovery of the specific germ in the blood may help our understanding of the general nature of the disease, and may elucidate the occurrence of complications at a distance from the site of the primary lesions.

As a diagnostic aid such examinations have proved to be very disappointing. The number of cases in which positive results have been obtained forms so small a proportion of the total number of examinations as to render them of but uncertain dependence in diagnosis. A negative result of such examination is to be accepted as in no way indicative of the non-existence of the suspected disease, and a positive result is rather to be regarded as a lucky chance occurrence than as something which might have been anticipated.

The matter is quite different, however, as regards the value of bacterial examinations of the blood as throwing light upon the general pathology of a disease. So long as it was supposed that the specific bacteria remained confined to the local or primary lesion of an infectious disease, their deleterious influence also was supposed to be similarly confined, and it was the hope of therapeutists that some means might be discovered of destroying the germs in the local lesion, and thus bringing the disease to a speedy termination.

It is clear that with the accumulation of evidence of a much wider distribution of the bacteria in the body the expectation of benefit from such local therapeutics becomes distinctly less.

But the discovery in the blood during life of the causative agent of an infectious disease goes far toward explaining the occurrence of distant and apparently spontaneous complications of that disease. As soon as it was made clear that the lesions of such complications in many instances contained the same germ as the primary lesion it was presumed that the transport of the infectious material must occur through either the blood or lymph channels, and in most cases of distant transport through the former. With the discovery of the encroachment of the primary lesion upon bloodvessels and the detection of the germs themselves in the blood during life, the proof of the correctness of this view became convincing.

The number of observations of the latter sort is now very considerable. The pyogenic germs have been detected in the blood during life by Rosenbach (1884), by von Eiselsberg (1886 and 1890), by Grawitz (1894), by Petruschky (1894), and others in cases of pyæmia; by Garré (1885), by Saenger (1889), and by von Eiselsberg (1890), in cases of osteomyelitis; by Czerniewsky (1888), by Stern and Hirschler (1888), by Grawitz (1894), and by Petruschky (1894), in cases of puerperal fever; in erysipelas by Grawitz (1894), and by Petruschky (1894); and in cases of malignant endocarditis by Saenger (1889), by Grawitz (1894), and by Petruschky (1894).

The pneumococcus has been found in the blood during life in cases of pneumonia by Belfanti (1890), by Bouley (1891), and by Sittmann (1894), and in a case of malignant endocarditis by Grawitz.

In 1894 Sittmann and Barlow detected the bacillus coli communis in the blood of a case of cystitis in which a general pyæmic condition had developed as a complication; and in 1895 the gonococcus was obtained by Thayer and Blumer by culture from the blood of a patient suffering from malignant endocarditis which occurred as a sequel to gonorrhœal infection.

The tubercle bacillus was detected morphologically in the blood during life in cases of tuberculosis as far back as 1884 by Weichselbaum, Meisels, Lustig, and others, but has not, I believe, been cultivated from the blood as yet. The differential method of staining the tubercle bacillus is, however, so characteristic as to make these observations reliable.

In 1893 the typhoid bacillus was obtained from the blood of a patient suffering from the typhoid fever by Thiemisch, and this observation has since that time been repeated by Ettlinger, by Stern (1896) and by Kühmann (1896).

Though from this enumeration it must be evident that already a very considerable number of observations of the presence of specific bacteria in the blood during life are at command, the recently reported observations of Kohn and Block are of much interest as throwing additional light upon this subject.

The investigation by KOHN was carried on in the Urban Hospital in Berlin (*Deutsche medicinische Wochenschrift*, 1897, No. 9).

In pronounced sepsis a positive result was obtained in every case in which the blood was examined, and in some cases the bacteria were obtained in large numbers. Thus in a case of acute ulcerative endocarditis the plated blood yielded 200 colonies of streptococci and several of staphylococci.

Of three cases of subacute and chronic endocarditis one only gave a posi-

tive result. This case was complicated by thrombo-phlebitis. Six colonies of staphylococcus developed on two plates made from the blood.

Negative results were obtained in cases of erysipelas, phlegmon, febrile jaundice, paroxysmal hæmoglobinuria, chronic leukæmia, pseudo-leukæmia, and acute articular rheumatism.

Eight cases of typhoid fever were examined, with the result of detecting bacilli in two, but the positive identity of these germs with the typhoid bacillus was not convincingly determined.

In a case of pyæmia in which joint symptoms played a prominent part in the clinical picture, streptococci were found—six colonies on a plate which had been streaked with the blood.

But the most interesting and important part in the investigation had to do with examinations of the blood in cases of acute lobar pneumonia. Thirty-two such cases were examined, in nine of which a positive identification of the pneumococcus was possible. Seven of the positive cases terminated fatally, and the remaining two, in which recovery occurred, were complicated respectively by pneumococcus empyema and by pneumococcus abscesses.

Of the twenty-three negative cases, eighteen terminated in recovery. Of the five fatal cases of this group, the fatal determination was due in two apparently to secondary infection with the streptococcus (empyema), in one the patient was alcoholic, and in a fourth bacterial examination of the lung after death made it probable that the pneumonia had been due to the influenza bacillus, not to the pneumococcus.

In the fatal cases in which a positive result was obtained the pneumococcus was detected in some cases as long as forty-eight hours before death.

The results of these examinations are certainly very striking. With all due allowance for the fact that the mortality in Kohn's cases was somewhat high—37.5 per cent.—it is still very significant that in 28 per cent. of those cases the pneumococcus should have been detected in the blood during life. But, aside from this, the prognostic significance of the presence of the pneumococcus in the blood would appear to be very great, for of the nine fatal cases of pure pneumococcus infection in seven a positive result was obtained from the blood examination. For this reason Kohn concludes that the presence of the pneumococcus in the blood of a patient suffering from pneumonia is to be regarded as a bad prognostic indication, and that in such cases death would seem to occur as the result of pneumococcus sepsis if not as the outcome of more evident secondary lesions.

The other observation to which I would call attention was made at the Johns Hopkins Hospital by BLOCK, and is reported in the *Bulletin of the Johns Hopkins Hospital*, June, 1897. In this case the typhoid bacillus was obtained twice from the blood during life, its identity being in each instance carefully tested by cultures.

Owing to the inability of the patient, a Polish woman, to understand English, the history of the case is meagre, but it appears that she entered the hospital in a weak condition, with considerable dyspnœa, restlessness, apathy, and fever; that she soon became delirious and continued so until her death six days after her admission, and that during this time her temperature ranged irregularly between the normal point and 104.6°. Physical examination disclosed no lesion of the lung.

Two days after her admission 1½ c.c. of blood was withdrawn from a vein of the forearm under aseptic conditions and was cultivated, resulting in the development of thirteen colonies of actively motile bacilli identical in every way with the typhoid bacillus, as was shown by numerous tests on various differential media. Three days later a second culture was taken by the same method, and when plated developed one colony of the same germ.

The autopsy disclosed the usual lesions of typhoid fever, in addition to which there was evidence of the invasion of the body by a gas-forming bacillus. Cultures upon agar plates yielded the typhoid bacillus in the spleen, liver, kidney, and in a portion of retained placenta; bacillus coli communis in the kidney and heart's blood; bacillus pyocyanus in the heart's blood; and bacillus proteus in the bile. It is quite likely that the invasion of the bacillus coli and of the bacillus proteus occurred post mortem, the autopsy not having been undertaken until thirty-seven hours after death. The gas-forming bacillus failed to grow in both aërobic and anaërobic cultures.

This is, I believe, the only case on record in which the typhoid bacillus has been detected twice in the same patient and in such numbers as in the first test, both of which circumstances testify to the very large number of the germs which must have been present in the blood at different times in the course of the disease, and in the first instance as long as four days before the fatal termination of the case.

The Etiology of Serous Pleurisy—In an interesting article in the *Zeitschrift für klinische Medicin* (1896, xxix., 440), ASCHOFF brings together the results of his examinations of 200 cases of serous pleurisy, 41 of which are described as "idiopathic," clinically. The remaining 159 could be traced to other diseased conditions, in the course of which they occurred as complications. In 43 cases evident tuberculosis was present, and in 19 other cases it was suspected. Lobar pneumonia preceded the pleurisy in 26 cases, influenza in 11, and in 41 various other affections of the respiratory system or of the circulation. In 16 cases the pleurisy was antedated by articular rheumatism.

The exudate in all these cases was examined both microscopically and by plants on agar. In 193 cases the result of this examination was negative. Too much importance should not, however, be attached to these negative results for the reason that a very small part indeed of the exudate was examined in each case, and the implantations were upon agar alone. In similar examinations directed to the determination of the part played by the tubercle bacillus in the induction of serous pleurisy Eichhorst discovered that much depended upon the amount of exudate taken for the test. Thus in Eichhorst's investigation 65.2 per cent. of 23 cases were detected as tuberculous when 15 c.c. of the exudate were inoculated into test-animals, while less than 10 per cent. (1 of 11) of the cases showed tuberculosis when only 1 c.c. of the exudate was used.

Of the seven exudates in Aschoff's study which yielded positive results two accumulated in the course of cases of lobar pneumonia, one of them containing the pneumococcus, the other streptococcus. The same germs were also found in two cases of "idiopathic" pleurisy, and the streptococcus was cultivated from the exudate in a case of pleurisy consequent upon gangrene of the lung. One each of the positive cases occurred in connection with tuber-

culosis of the lung and as a part of a general sepsis. In these last cases the bacteria were detected only at the first examination, and the inference was that they died quickly in the exudate. In the five other cases the bacteria persisted and the exudate subsequently became purulent. From this Aschoff concludes that if the conditions are such as to permit the continued growth of the bacteria in cases of serous pleurisy the exudate in almost all cases sooner or later becomes purulent, the only exception to this being, perhaps, in cases due to the pneumococcus.

But the most valuable part of the investigation is that which relates to the part played by the tubercle bacillus in the induction of serous pleurisy. With a view to determining this, 3 c.c. of the exudate from 37 of the cases were injected into the peritoneal cavity of guinea-pigs. Twenty-five of these were cases of known or suspected tuberculosis; 12 were "idiopathic." Sixty-eight per cent. of the guinea-pigs inoculated from the first set of cases became tuberculous, and 75 per cent. of those inoculated from the "idiopathic" cases. From this the inference is that a large proportion of the so-called "idiopathic" cases of serous pleurisy are in reality tuberculous. It will be noted that these results of Aschoff's investigation tally closely with those obtained by Eichhorst above referred to.

The Preservation of the Pneumococcus and of the Streptococcus in Cultures.—The difficulties attending the preservation of the vitality and virulence of the pneumococcus and streptococcus pyogenes are well known. It is rare for the pneumococcus to remain alive in cultures after the first few days, and the virulence of the streptococcus rapidly attenuates, though the germs themselves may remain alive for some time, and these peculiarities in the life-history of these germs have imposed formidable obstacles to their study. Much interest consequently attaches to a method of preserving these germs which has recently been proposed by BERNABEO (*La Riforma medica*, 1896, No. 21.

In the course of some experiments with the pneumococcus Bernabeo filled glass tubes, about 20 cm. long and 5 mm. in diameter, with blood directly from the heart of rabbits which had died of pneumococcus septicæmia. The tubes were then hermetically sealed over the lamp, all air being excluded, and were set away in a dark place at the room-temperature. Bernabeo was not a little surprised to find living and virulent pneumococci in blood thus preserved at the end of six months.

In the same manner streptococci were preserved for ten months, though at the end of that time they had lost some degree of their virulence.

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